PHILOSOPHY

THE JOURNAL OF THE BRITISH INSTITUTE OF PHILOSOPHY

VOL. XXI. No. 78 APRIL 1946

EDITORIAL

THE BRITISH INSTITUTE OF PHILOSOPHY comes of age on 6th April, 1946. For twenty-one years it has endeavoured to provide a philosophic background for those seeking to equip themselves for the task of forming sound judgments on the many complex problems of our age—scientific, moral, religious, and even political.

It not infrequently happens that some emotional shock in the formative period of a person's life, or the novel experience of contact with a great and original thinker, leads to an awakening from a state of unquestioning acceptance of the world and its ways, to one of active wonder and of critical appraisement. As a consequence, there arises a thirst for an understanding of the things of time and eternity, which persists so long as life lasts. This state of mind is what the Greeks called ἡ φιλοσοφία.

Evidence is not wanting to show that the increasing specialization of man's work, and of the studies involved in the preparation for such work, greatly limits and narrows his outlook, begetting a sense of impoverishment through exclusion from important aspects of reality vaguely felt but not clearly seen. Thus it is that many feel the need for an opening of the windows of the mind so as to enjoy the view of the wider whole to which they belong, in the hope that through a vision of the realm of the ideal in its relation to the plane of the actual, they may gain inspiration to pursue their specialist tasks, enlightened by an understanding of their significance in this wider whole. It is the function of philosophy to present, if it can, this vision, and it is hoped that many have been helped to obtain at least some glimpses of the totality of existence by means of the services provided by the Institute during the past twenty-one years.

It is fitting at this time to record our sincere thanks to the many lecturers and contributors to *Philosophy*, who have ungrudgingly and with enthusiasm given of the ripest fruit of their scholarship,

that others might share in their wisdom. At the same time we thank members and others who, by their support and appreciation of the Institute's work, have contributed much to its successful adventure of bringing philosophy from the study to the forum.

It will readily be understood that the war has brought a considerable reduction in membership and income, at a time of greatly increased costs. Consequently, the Institute imperatively needs to augment its resources, in order that it may both continue and, at the appropriate time, expand its accustomed services. It is, therefore, intended to appeal through the Press for wider public support, in the hope that thoughtful people will join the Institute in large numbers. In furthering this appeal, the active co-operation of readers of *Philosophy* throughout the world is confidently anticipated.

THE HIBBERT JOURNAL

A QUARTERLY REVIEW of RELIGION, THEOLOGY & PHILOSOPHY

Edited by L. P. JACKS

Principal articles for January 1946

1.	**Sin and the Herd Instinct**	Laurence Housman
2.	**The Mystery of Unity**	Father Cuthbert Lattey, S.J.
3.	**Religion and the B.B.C.**	Lieut-Colonel E. N. Mozley, D.S.O.
4.	**Homo Lupus**	Dr. Robert Eisler
5.	**Christianity and World Affairs**	Dr. Maxwell Garnett
6.	**The Punishment of Germany and Japan**	Canon Hubert England
7.	**The Centenaries of 1946**	G. J. King
8.	**Prince Max Von Baden**	Erich Meissner, Ph. D.
9.	**The Hebrew Conception of Speech as Creative**	A. F. H. Thornton, Ph. D.
10.	**Food for Thought**	John Murray

SUBSCRIPTION: TEN SHILLINGS NET PER ANNUM, POST FREE

Apply for free specimen copy

GEORGE ALLEN AND UNWIN LIMITED

40 MUSEUM ST., LONDON WC1

THE EPISTEMOLOGICAL FOUNDATIONS OF NATURAL PHILOSOPHY

G. J. WHITROW, M.A.

THE history of Natural Philosophy is dominated by a paradox; broadly speaking, a vast increase in its range of application to the external world has been accompanied by a sweeping simplification in its basic assumptions. From the standpoint of Empiricism this dual development appears utterly mysterious. On the other hand, Rationalism, which seeks to demonstrate the metaphysical necessity of natural law, and hence might throw light on this development, has been generally discredited, particularly by men of science. It is not surprising, therefore, that philosophical discussion of scientific method has become a Babel of confusing tongues.

I

SCIENTIFIC METHOD

What is meant by scientific law? Norman Campbell[1] has shown that a law usually implies some kind of "invariable association"; for example, laws of cause and effect are concerned with invariable associations in time. Natural science has been described by Campbell[2] as the study of those judgments concerning which "universal" agreement can be obtained, at least in principle. According to this view, scientific method is the interpretation of phenomena by a principle of "uniformity" and "communicability."

It may be objected that this concept of scientific method is too amorphous, including, *inter alia*, logic and pure mathematics. It is true that one reason why men took so long to find a fruitful method of scientific enquiry was because they were slow to separate the "physical" from the "biological," etc. In particular, the Pythagoreans were led to *logical* paradoxes by identifying physical and mathematical situations uncritically. Nevertheless, the opposite policy, to regard the mathematical as wholly abstract and the physical as completely concrete, results in *epistemological* confusion.

The principal problem examined in this essay is the epistemological one of how a consistent system of elementary natural philosophy is possible, rather than the equally important psychological

[1] Norman Campbell: *Physics: the Elements* (1920), p. 21.

[2] *Ibid.*, p. 39.

one of how to analyse our primitive sense data. Although strictly biological and psychological considerations do not lie within my scope, the point of view I adopt is similar to Campbell's, synoptic rather than artificially specialized. Hence my policy is to associate logic, epistemology, mathematics and physics, as far as possible.

All concepts of scientific method, wide or narrow, involve some notion of "uniformity." Here the cloven hoof appears: is this uniformity inherent in Nature or imposed by the Mind? In practice, most investigators are sustained by the belief that Nature is not capricious and that an Order of Nature can be discovered, irrespective of its origin. Nevertheless, the philosophically minded cannot remain content with this uncritical optimism. As Charles Peirce[1] remarked, "Uniformities are precisely the sort of facts that need to be accounted for. . . . *Law* is *par excellence* the thing that wants a reason."

By considering the similarities and uniformities apparent in the world, the ancient logicians were led to the construction of concepts. In Aristotelian logic it was assumed that the Mind could select from the multiplicity of existing objects the features common to some of them. To be fruitful this method necessarily involved a pre-logical selection principle. For example, "if we group cherries and meat together under the attributes red, juicy and edible, we do not obtain a concept of any value."[2] Thus, in practice classical logic presupposed a theory of being. In the background of ancient thought lay the world of universals, an absolute unchanging substratum of "things," each characterized by definite properties. Concepts were detached from each other, relations and connections being considered as non-essential.

Whereas the Hellenic mind saw the world from the perspective of the absolute, the modern mind sees it from the perspective of the relative. In ancient thought the concrete particular was regarded as the imperfect image of the abstract universal. In modern thought individual phenomena are interpreted by rules correlating their aspects to different "observers." In our mental background looms the metaphysical assumption that the universe is a nexus of relations.

II

THE NATURE OF GEOMETRY

My approach to the epistemology of natural philosophy will be made in the light of this change in perspective. In particular, I shall be guided by the effect of this change on the underlying discipline, Geometry.

[1] C. S. Peirce, *The Architecture of Theories*.

[2] E. Cassirer, *Substance and Function* (1923), p. 7.

In Euclidean geometry each geometrical form was isolated and immutable. On the other hand, in Cartesian and projective geometry attention was directed to the relations between, and the transmutation of, geometrical forms. As a result, the gain in mathematical power and unity has been enormous. Problems which the ancient geometers analysed into many different cases can now be solved by a single construction. Nevertheless, this unification has been accompanied by a new alogical "relativistic" multiplicity. In analytical geometry the origin of co-ordinates can be chosen at will; in projective geometry any point can be the centre of projection.

This is not the only difference between the ancient and modern conceptions of geometry. Euclidean geometry was regarded as the indisputable science of space and its occupancy by bodies. It was thought to be real knowledge of the world, being a rational refinement of mensuration. Its proofs were associated with the contemplation of matter in the form of diagrams and solid figures. The great Hellenic geometers did not aspire to that degree of abstraction in geometry which Lagrange achieved in mechanics. Their consummate intellectual feat was the invention of the axiomatic method, the first and most remarkable act of geometrical abstraction. The significance of this feat was twofold. Geometry became a deductive discipline, its truth being guaranteed by the supposed self-evident character of its premises; moreover, it became universal, its subject-matter being no longer "this point," "that line," etc., but "any point," "any line," and so on. However, this astonishing increase in the scope and sweep of the science generated philosophical difficulties, which were reflected in the perennial disputes concerning universals and particulars, nominalism and realism. Nevertheless, until the last century Euclidean geometry was generally regarded as the unique science of space and as the prototype of absolute knowledge. Thus, to mention but two names, Newton, in developing his Natural Philosophy, and Spinoza, in constructing his Ethics, each based his presentation on the Euclidean pattern.

The first misgivings appear to have been felt in the eighteenth century; serious criticism of Euclid's work dates from that age. This criticism has been concerned not only with actual flaws in the reasoning, flaws mainly associated with illegitimate "appeals to the figure," but also with the alleged intuitive and unique character of the axioms. For example, it has been shown that the axiom of parallels can be replaced by other axioms in such a way that the logical consistency of the resulting systems entirely depends on the self-consistency of the original Euclidean system. This momentous discovery led to the second act of abstraction, the development of Geometry as a purely *formal* discipline. This development, in its turn, has generated its own philosophical problems. Has Geometry any *significance*? Are there

any objects to which the axioms can be applied so that the axioms are true? One such set of objects is found in the domain of numbers, and the consistency and truth of Geometry can be shown to depend on the consistency and truth of Arithmetric. No completely successful solution to this further problem has yet been found. Hilbert attempted to develop a philosophy of Arithmetic as purely formal, but, besides his inability to prove its freedom from self-contradiction, it is difficult to see how Arithmetic, thus regarded, can be usefully applied to external objects. As F. P. Ramsey[1] pointed out, ". . . if I said 'I have two dogs,' that would tell you something; you would understand the word 'two,' and the whole sentence could be reduced to something like 'There are x and y which are my dogs and which are not identical with one another.' This statement appears to involve the idea of existence and not to be about marks on paper."

Without adopting the extreme point of view of the Formalists, it appears, nevertheless, that our application of Geometry to Nature is partly conventional, because an element of *choice* is involved. An illuminating analogy has been drawn by Nicod.[2] "As children," he says, "we have all seen those picture puzzles which represent things that we cannot distinguish at the first glance; where it is a matter of discerning a giraffe or lion in the lines of a landscape deserted when first scanned. When we have "discovered" the picture hidden in them, we have seen nothing new. The contour of this little mountain is now the mane of a lion, and the knot in this tree-trunk is its eye. We had read in this network of lines a certain structure, the landscape, and now we have just read a second structure, the lion. . . . The pattern that I have before me is sensible nature. The elementary relations that I know how to spell, so to speak, are the original relations of my sense-data. The figure that I tried to read is, for example, the geometry G(p, c). What groups, taken as elements, make this structure G appear in the relations which flow from their grouping? Would there be several modes of grouping answering this requirement; might one find a lion in the landscape in more than one way?" The extreme thesis, that our application of Geometry to the description of the external world is *primarily* conventional, was elaborated by Poincaré. He maintained that *any* spatial structure can be assigned to Nature by appropriate changes in the statement of physical laws, and used this result as an argument for the retention of Euclidean geometry, mainly because it is simpler than other geometries, in the same sense as polynomial of the first degree is simpler than polynomials of higher degree. The simplicity which Poincaré had in mind is purely syntactic or intrinsic. As Nicod pointed out, it has no reference to the significance or meaning of the fundamental concepts

[1] F. P. Ramsey, *The Foundations of Mathematics* (1931), p. 72.

[2] J. Nicod, *Foundations of Geometry and Induction* (1930), p. 93.

considered. Indeed, the comparative epistemological or extrinsic simplicity of Euclidean geometry is not immediately obvious; indeed, in General Relativity, priority in this respect has been assigned by Einstein, somewhat arbitrarily, to the intrinsically more complex Riemannian geometry.

It follows that, if the natural philosopher adopts a particular geometry primarily because of its formal simplicity, he cannot be sure that he has made a significant choice, and the laws of nature may assume an unnecessarily elaborate form. Hence, if possible, deeper considerations should be taken into account.

The empiricist maintains that in practice the question of *choosing* a basic geometry of physics does not arise. In direct opposition to the relativistic point of view, with its explicit recognition of the Mind as an active factor in natural philosophy, he still subscribes to the *tabula rasa* doctrine. This naïve conception of scientific method has been severely criticized by Cassirer.[1] " 'Pure' experience, which is conceived as separated from any conceptual presupposition, is appealed to as a criterion of the value or lack of value of a certain theoretical assumption. The critical analysis of the concept of experience shows, on the contrary, that the separation here assumed involves an inner contradiction. Abstract theory never stands on one side, while on the other side stands the material of observation as it is in itself and without any conceptual interpretation. Rather this material, if we are to ascribe to it any definite character at all, must always bear the marks of some sort of conceptual shaping. We can never oppose to the concepts which are to be tested, the empirical data as naked 'facta'; but ultimately it is always a certain logical system of connection of the empirical which is measured by a similar system and thus judged."

Similarly, Waismann[2] has remarked, with particular reference to empirical geometric measurements, "The propositions of geometry are a system of rules applied to factual measurements by which we determine, e.g., whether a given line is straight, whether a given body is a sphere, etc. . . . These rules are the syntax of the concepts with which we describe the factual spatial connections. . . . Idealization does *not* mean that the factual measurements are refined in thought without limit. It means, rather, that the observations are described by concepts of a previously given syntax (and with a syntax which is capable of unlimited exactitude). One does not approximate the ideal, rather one proceeds from it." It follows that a particular geometry cannot be uniquely imposed on natural philosophy by an uncritical appeal to the empirical.

The problem of the significance of geometry was attacked by the

[1] E. Cassirer, *op. cit.*, p. 107.

[2] J. R. Weinberg, *An Examination of Logical Positivism* (1936), p. 116.

great German physiologist and physicist, Helmholtz, in 1868. His method, subsequently placed on a more rigorous foundation by the Norwegian mathematician, Lie, originated in an examination of the problem from the point of view of our general intuition of space; indeed, he first considered the question as arising out of the physiological problem of the localization of objects in the field of vision. He examined the spaces in which the properties of rigid bodies are not affected by translation and rotation. As a result of his work and Lie's, it was discovered that the only spaces which are continuous, isotropic and homogeneous are those of constant curvature. Of these there are three, spherical, hyperbolic and Euclidean; *locally*, i.e. for distances which are small compared with the radius of curvature, all three are Euclidean.

From the epistemological point of view, the axiom of parallels is not a primitive proposition of Euclidean geometry but a theorem. The significant axioms are those of continuity and uniformity (homogeneity and isotropy). These axioms are not "self evident" or *logically* necessary, but, on the other hand, unlike the axiom of parallels, they do not appear to be arbitrary. They are axioms which are "natural" to the development of mensuration, at least in its more primitive and less sophisticated phases. In general terms, they assert that the properties of A's yardstick are independent of its orientation and are congruent with those of B's yardstick, no restriction being placed on the magnitude of the yardsticks. They are axioms of the type which characterizes scientific method in general, in virtue of their "uniformity" and "communicability." They are *epistemologically* primitive.

This argument appears to be the ultimate *a priori* justification for basing elementary physics on Euclidean geometry.

An analogous situation arises in the practical application of ordinary arithmetic. In describing particular sets of natural objects, the degree of usefulness of the laws of arithmetic, e.g., that the number of a finite set of objects is independent of the order in which they are counted, can only be settled empirically. However, *pace* J. S. Mill and Harold Jeffreys, it does not follow that these laws are merely *a posteriori* inductions from experience. Instead, they constitute the syntax of an epistemologically primitive concept of individuation. Whitehead[1] has drawn attention to an illuminating legend of the Council of Nicaea. "When the Bishops took their places on the thrones they were 318; when they rose up to be called over, it appeared that they were 319; so they could never make the number come right, and whenever they approached the last of the series he he immediately turned into the likeness of his next neighbour." To a set of entities of this type the laws of ordinary arithmetic are clearly

[1] A. N. Whitehead, "Mathematics," *Encyclopaedia Britannica*, 11th edition.

inappropriate. *A priori* it is not impossible for particular objects of this type to exist in Nature. The essential point is that, irrespective of their possible physical existence, such objects would not be of sufficient epistemological simplicity for the Mind to consider *first*, in evolving a *fruitful* method of scientific enquiry.

For guidance in examining the foundations of natural philosophy, the following conclusions of our brief survey of geometry are recapitulated.

The discovery of non-Euclidean geometry showed that the *form* of geometry is not unique. It made no assertion concerning the physical *significance* of geometry. Although we can no longer assume without question that the only physically significant geometry is Euclidean, we cannot automatically eliminate the possibility of discovering *a priori* reasons for preferring one geometry to another in building up a system of theoretical physics. In so far as a choice is open to us, a conventional factor is involved. Similarly, the identification of particular objects as approximations to Euclidean straight lines, for example, necessarily involves an appeal to the empirical. These conventional and empirical factors, however, are subordinate to our concept of scientific method. Thus, the rigid rods of the experimental physicist are not first chosen empirically and then found to be, say, Euclidean. Rather, as Waismann has indicated, the primitive rigid rod is ideal, and approximations to it are sought in Nature. Our methods of approximation are extremely artificial; witness the elaborate precautions necessary to define empirical metrical standards to a high degree of accuracy. However, if our concept of scientific method implies congruent measurement by a continuum of hypothetical observers, the *initial* choice of a particular geometry as an ideal background, against which physical phenomena are to be silhouetted, can be decided by *a priori* epistemological considerations.

III

THE NATURE OF DYNAMICS

The history of dynamics since the sixteenth century is permeated by the influence of geometry and by the evolution of relativistic concepts. These two factors are intimately related, for, in its theory of congruence and spatial homogeneity, even Euclidean geometry was crypto-relativistic. Although the ancient geometers did not consciously differentiate between the space of geometry and the space of physics, the former was not subject to the non-relativistic doctrine of "place." On the other hand, the space of physics possessed the property that every natural object has a natural place which it seeks. Ancient natural philosophy was thus more consistent with contem-

porary logic and metaphysics and, consequently, more sterile than geometry. The bankruptcy of ancient physics was due, at least in part, to its neglect of relations and relativistic concepts. Ancient geometry, however, has not only survived as a living discipline, but in the scientific renaissance provided the missing key to the mysteries of motion. The Copernican revolution, foreshadowed by the great mediaeval mathematician, Cardinal Nicholas of Cusa, was based on the introduction into kinematics of the relativistic point of view, implicit in Euclidean geometry, and, as we have already remarked, explicit in Cartesian. Thus the chasm between ancient and modern thought was bridged by mathematics.

We have seen how the initial choice of a particular abstract geometry for mapping physical phenomena can be based on epistemological considerations. By analogy, it is suggested that a similar situation should arise in dynamics. First, however, I consider a famous objection of Poincaré's[1] to this possibility.

"The experiments," he said, "which have led us to adopt as more convenient the fundamental conventions of geometry bear on objects which have nothing in common with those geometry studies; they bear on the properties of solid bodies, on the rectilinear propagation of light. They are experiments of mechanics, experiments of optics; they are not in any way to be regarded as experiments of geometry. . . . On the contrary, the fundamental conventions of mechanics and the experiments which prove to us that they are convenient bear directly on the same objects or analogous objects." However, he was not quite at ease with his own argument, for he continued, "Let it not be said that I trace artificial frontiers between the sciences; that if I separate by a barrier geometry, properly so called, from the study of solid bodies, I could just as well erect one between experimental mechanics and the mechanics of general principles. In fact, who does not see that by separating these two sciences I mutilate them both, and that what will remain of conventional mechanics which shall be isolated will only be a very small thing and can in no way be compared to that superb body of doctrine called geometry?"

Such an apology is not convincing, for theoretical mechanics, including Lagrange's *Mecanique Analytique*, the Hamilton-Jacobi theory, the three body theory, the qualitative dynamics of Poincaré and Birkhoff, General Relativity, etc., can be regarded in the same way as we regard geometry and constitutes an equally superb body of doctrine. Moreover, the distinction which Poincaré draws between the objects of geometry and the objects of mechanics is artificial. It is true that in abstract geometry we are concerned with concepts and not with concrete objects, but the situation is similar in theoretical dynamics. A massive particle is just as much an abstract

[1] H. Poincaré, *The Foundations of Science* (1929), p. 124.

concept as is a point or a line. The conceptual spaces studied by the geometer are paralleled by the conceptual dynamical systems studied by the natural philosopher. Furthermore, the application of geometry to particular objects is similar to the application of dynamics. Euclidean geometry is appropriate to the description of certain phenomena, whereas spherical geometry, for example, is more appropriate to the description of others (e.g., the night sky); similarly, non-relativistic Newtonian dynamics and relativistic quantum dynamics, for example, have their appropriate particular applications.

Poincaré's objection ultimately depends on an apparent fundamental distinction between the character of geometrical and dynamical axioms. As we have seen, the axioms of certain geometries can be chosen so as to display not only formal simplicity but also an epistemologically primitive character. The axioms of the most elementary systems of dynamics appear to be much more arbitrary. Thus arises the question which is the kernel of this essay, *viz.*, can a simple system of dynamics be constructed which is *epistemologically* primitive, in the sense in which we have seen that, e.g., Euclidean geometry is? Moreover, just as Euclidean geometry can be formally "translated" into spherical and hyperbolic geometries, do there exist analogous translations of the simplest type of dynamics?

As an essential preliminary to answering these questions, I begin with a brief survey of the history of dynamics.

This science was not born until Copernicus and Galileo freed men's minds from uncritical subservience to the authority of Ptolemy and Aristotle. The objection to the Ptolemaic-Aristotelian system was not that it failed to account for the observed planetary motions, but that it was eventually found to be unnecessarily complicated. The reason for its complexity lay in the assumption that all motion must be interpreted in terms of circular motion. The origin of this assumption was the arbitrary Hellenic postulate that "real" motion is "perfect" and thus "eternal." Since, in ancient geometry, all straight lines were conceived as finite in length, with definite end points, it followed that eternal motion could not be rectilinear. This objection did not apply to circular motion. Galileo and Newton, no longer obsessed by the logical consequences of the Hellenic rejection of the infinite, regarded the fundamental type of motion as rectilinear, but they still assumed that it was uniform and eternal. Newton's first law of motion is syntactically superior to Ptolemy's, but its epistemological character is equally arbitrary. Nevertheless, Newton's general philosophy of motion, unlike Ptolemy's, was not purely descriptive. An attempt was made to explain the uniformities in Nature. Each new observational discovery necessitated a purely arbitrary addi-

tional complication to the Ptolemaic system. The Newtonian system, on the other hand, was modelled on the pattern of geometry, and did not need to introduce a purely *ad hoc* explanation for each new fact discovered. The only mystery was that the fundamental axioms were so powerful and yet so arbitrary.

The keystone of Newtonian mechanics is the principle of inertia, or Newton's first law of motion. The character of this law is puzzling. There is a significant similarity between the efforts of philosophers and physicists to establish it *a priori* and the attempts of geometers to "prove" the axiom of parallels in Euclidean geometry. The abstract conceptual nature of the principle of inertia has made it difficult for the theoretically minded to regard it merely as an induction from particular instances. Not only speculative philosophers but also "sound" physicists, notably Clerk Maxwell,[1] have endeavoured to establish this principle by pure deductive reasoning. Indeed, Clerk Maxwell claimed that he had shown "that the denial of Newton's law is in contradiction to the only system of consistent doctrine about space and time which the human mind has been able to form." His proof was fallacious, and this was inevitable, for the law, as conceived until recently, was either meaningless or else contained an implicit contradiction.

If a "free particle" is defined as one which moves in empty space, Newton's law asserts that "a free particle moves for all time with uniform velocity in a straight line." If we regard this law as an axiom, or disguised definition, we observe that a free particle has been defined in two different ways, which must be either redundant or incompatible. Consequently, we are led to ask the following questions:—

(1) If a particle moves in empty space, must it do so for all time with uniform velocity in a straight line?

(2) If a particle moves for all time with uniform velocity in a straight line, must it be moving in empty space?

The first question raises the problem of defining an inertial frame in empty space, to which Einstein and Infeld have recently redirected attention. Given one inertial frame, an infinite number can be defined immediately, namely, all those in uniform motion relative to the first; the difficulty is to define an initial frame. This was recognized by Neumann, who endeavoured to circumvent it by introducing his ontological postulate of the immobile body, "alpha," and by Mach, whose analysis was much more acute and laid the foundation for modern ideas.

Mach came to the conclusion that in formulating the law of inertia regard must be paid to the masses of the universe. All bodies, each contributing its share, are of importance in defining this law. Motion

[1] Clerk Maxwell, *Matter and Motion* (1925), p. 29.

without reference to other bodies he regarded as a meaningless concept. The argument goes back to Berkeley. In his essay, "De Motu," he criticized the ideas of absolute space, time and motion, pointing out that the attributes of absolute space are negative and that it cannot be imagined. He argued that, if every place is relative, then every motion is relative. If everything were annihilated except one globe, it would be impossible to imagine any movement of that globe. Consequently, motion in empty space is meaningless, and Newton's first law of motion is devoid of significance, if interpreted in this context.

To overcome this difficulty some physicists have assumed that reference to other bodies is necessary to give *kinematical* significance to the law of inertia; but, in order to retain the law in its original form, these other bodies are assumed to have no *dynamical* effect on the "free particle." The reconciliation of these ideas with the law of gravitation is attempted by postulating that the other bodies are "very distant." This argument is hopelessly lacking in precision; indeed, the law of inertia thus interpreted, involves an internal contradiction.

Following Mach's argument to its logical conclusion, we reject the notion of empty space as a significant frame of reference and concentrate attention on the second question raised above. The Platonic-Newtonian concept of space as "the receptacle" is replaced by the Leibnizian relativistic concept of space as "the order of co-existences." An intermediate stage was dominated by the ether concept, which in a rudimentary form was present in the Newtonian philosophy of nature. Plausibility was lent to this concept by the experiments of Newton's rotating bucket and Foucault's pendulum, which were explained most easily on the postulate of the absolute character of rotation. Mach pointed out, however, that there is no need to introduce the ether concept to explain these experiments; it is only necessary to refer the phenomena to the frame of the "fixed stars." He argued that, if rotation were absolute and not merely relative to the stellar system, then, if the bucket and the earth respectively was fixed and the stellar system rotated, the phenomena observed by Newton and by Foucault would not arise. This situation cannot be realized, as the world is only given to us *once* and not *twice*. Consequently, the crucial experiment which would demonstrate the existence of absolute rotation is impossible, and it is not necessary to introduce this concept.

Considerations of this kind have led to the replacement of the idea of motion as an *attribute* characterizing a "thing" by its interpretation as a *relation* between one or more things. The law of inertia thus comes to be regarded, not as a property of a single body or particle, but as a relation between a certain object or class of objects and a

basic framework of other objects. Thus, it is brought into line with the concept of gravitation, which is not an inherent property of a mass but a relation between two masses. In this case, however, the axiomatic character of the law appears even more arbitrary than before. Recalling the similar situation in geometry concerning the axiom of parallels, we are led to ask whether, from the epistemological point of view, the law of inertia should be regarded as primitive. To answer this question we must return to first principles.

IV

SYSTEMS OF NATURAL PHILOSOPHY

The Natural Philosophy of Newton and the General Relativity of Einstein are successive approximations to an ideal epistemologically primitive science of dynamics; for, while both systems contain certain arbitrary features, General Relativity contains fewer and at the same time can account for phenomena, *e.g.*, the motion of the perihelion of Mercury, inexplicable by the Newtonian method, unless *ad hoc* assumptions are made. In both theories there is some obscurity concerning the method of comparing measurements made by different observers. In classical dynamics there is practically no theory of the congruence of clocks and rigid rods, whereas in relativistic dynamics, despite a brilliant investigation of the relations between the clocks and rods used by *different* observers, Einstein gives no analysis of the relations between the various clocks and rods which can be used, in principle, by the *same* observer. For Einstein, as for Newton, a clock and a measuring rod are ontological postulates or arbitrary empirical assumptions suggested by the behaviour of certain materials under restricted conditions. However, in the last decade a theory has been developed, primarily by Milne, which is based on explicit rules for defining *all* measurements. This theory, known as "Kinematic Relativity," is a further approximation to an ideal epistemologically primitive system of natural philosophy.

Theories of the physical universe fall into three general classes, according as the basic framework of the world is regarded as One, or as a plurality of things, which are either mutually independent, like the monads of Leibniz, or else "related," like the "equivalent observers" of Kinematic Relativity.

(i)

Prototype of unitary systems is that of Parmenides, who regarded the world as a continuous sphere always identical to itself. His cosmology is probably the most *logically* perfect that has ever been devised. Despite its obvious incompatibility with our most elemen-

tary sense data, it has had a profound influence on the development of human thought, for not only has it an easily recognized progeny in idealist philosophy down to Bradley, but it has even left its impress upon the classical physics of Newton and his successors. Disregarding primitive mythological systems, with their vague notions of a controlling Fate, the oldest cosmologies of which we are aware are those of the Ionian philosophers, Thales and his successors, who sought some invariant principle in the apparently ever-changing flux of phenomena. The system of Parmenides was a sophisticated example of this class of theory. Its logical perfection caused the notion of "invariant" to crystallize in human thought for over two thousand years as that which is immutable or independent of time. Indirectly, it must have been crucial in determining the basically *geometrical* character of nearly all subsequent natural philosophy and, in particular, in causing Newton to expound his dynamics in synthetic form, despite the probability of his having employed other methods for inventing it. Indeed, so fundamental is the Parmenidean concept of "invariant" in the history of science that in recent years a distinguished authority[1] has maintained that scientific explanation "consists in the identification of the antecedent and the consequent." Thus,[2] "science in its effort to become 'rational' tends more and more to suppress variations in time," so that "the principle of causality . . . is the elimination of the cause."

Whatever criticism we may bring to bear against this point of view on *philosophical* grounds, there is no doubt that it is a correct expression of an *historical* tendency. Hellenic natural philosophy was almost entirely geometrical and "timeless." Modern natural philosophy, in the main, has been based on Galileo's concept of "geometrical," i.e. reversible or "timeless," time. Despite the brilliant achievements resulting from the skilful use of this concept, grave difficulties have been encountered, *e.g.*, the problem of reconciling the secular increase of entropy with the reversibility of the equations of classical dynamics. Indeed, as Meyerson[3] himself remarked, ". . . contrary to what causality postulated, it is not possible to eliminate time, since this elimination would have reversibility as its preliminary condition, and reversibility does not exist in Nature. The reversible phenomenon is purely ideal." In particular, it is significant that, after an exhaustive investigation of the nature of inertia, this acute thinker can draw only the following lame and curious conclusions[4]. . . . "Is the principle of inertia *a priori* or *a posteriori*? It is neither the one nor the other because it is both at the same time. . . . Perhaps it would be wise to apply to statements of this category, intermediary between the *a priori* and the

[1] E. Meyerson, *Identity and Reality* (1930), p. 219.
[2] *Ibid.*, p. 230. [3] *Ibid.*, p. 284. [4] *Ibid.*, p. 148.

a posteriori, a special term. We should propose, for lack of a better one, the term *plausible*. Therefore, every proposition stipulating identity in time, every law of conservation is plausible. . . . The principle of inertia demands that we conceive of velocity as a *substance*. . . . How does it happen, then, that our mind accepts this strange notion? . . . we accept it because it can serve to satisfy the causal tendency. . . ."

(ii)

The theory of Parmenides was not only the sophisticated product of a train of thought originally due to the Ionian materialists, particularly Anaximander. It was devised as a counterblast to an entirely different theory of Nature, of the second of our three main types. Pythagoras and his school, from whom Parmenides may have broken away, maintained that the ultimate realities in Nature are numbers. This *arithmetical* type of natural philosophy should be distinguished from the philosophically cruder atomism of Democritus, in that the plurality of numbers is not original but derived. Indeed, a large part of Pythagorean arithmetic appears to have consisted of a study of the various sets obtained by adding one unit to another to form geometrical patterns. The unit itself, however, was regarded as indivisible, so that the Pythagorean model of the world was a *discontinuous* system of invariant particles, or small changeless units of *finite size*. Parmenides rejected this number-atomism because it seemed to him irrational that "One" could generate "Many." The difficulties consequent on the discovery of the incommensurability of the diagonal of a square also may have influenced him; but the *coup de grâce* to Pythagoreanism was given by Parmenides' pupil and protagonist, Zeno of Elea, in his famous paradoxes. By apparently irrefutable logic he laid bare the Pythagorean confusion between the attributes of geometrical point, physical atom and numerical unit. The influence of Zeno's arguments was decisive; henceforward Greek thought eschewed "arithmetic," the infinite process and monadology; moreover, time was regarded as contrary to reason and, therefore, unreal.

A highly original and ingenious attempt to "save the phenomena" of individuality and to reconcile the "One "and the "Many" was made by Leibniz. In order to avoid the "Labyrinth of the Continuum," Leibniz suggested that the ultimate indivisible units of reality are spatially unextended elements of *consciousness* (either actual or potential). To be truly individual, these monads must be mutually independent. To reconcile this conception with the existence of a single, universal world-order, he proposed his celebrated principle of Pre-established Harmony, that each monad reflects the

same universe from one particular point of view out of an infinite number, from every one of which some monad mirrors it.

Leibniz was a Rationalist, believing that laws of nature are laws of thought, but unlike his predecessors he drew a distinction between truths of pure reason, which are "necessary," because they are due to the principle of contradiction, and truths of fact, which are contingent, as only a "sufficient" reason can be given why they should be so and not otherwise. Propositions dealing with physical existence were regarded by him as of this type. Only a sufficient reason can be assigned to them, because their opposites are not self-contradictory. This causal principle was used to justify the pre-established harmony.[1] "The nature of every simple substance, soul or true monad being such that its following state is a consequence of the preceding one, here now is the cause of the harmony found out. For God needs only once to make a simple substance become once and at the beginning a representation of the universe, according to its own point of view; since from thence alone it follows that it will do so perpetually; and that all simple substances will always have a harmony among themselves, because they always represent the same universe." It has been objected that the monads might run through their perceptions at different rates, but as they do not communicate with each other this objection is meaningless.

Although the monads were regarded as mutually independent and Leibniz's logic was founded solely on the subject-predicate concept, he invented the relational concepts of space and time. He was led to these conclusions by applying the principle of sufficient reason. In his third letter to Clarke he wrote, "I say then that if space were an absolute being, there would happen something for which it would be impossible that there should be a sufficient reason. . . . Space is something absolutely uniform, and, without the things situated in it, one point of space does not differ in any respect from another point of space. Now from this it follows that if we suppose space is something in itself, other than the order of bodies among themselves, it is impossible that there should be a reason why God, preserving the same positions for bodies among themselves, should have arranged bodies in space thus and not the other way round (for instance) by changing east and west. But if space is nothing other than this order or relation and is nothing whatever without bodies but the possibility of placing them in it, these two conditions, the one as things are, the other supposed the other way round, would not differ from one another; their difference exists only in our chimerical supposition of the reality of space in itself. . . . The same is true of *time*. Suppose someone asks why God did not create everything a year sooner; and that the same person wants to infer from that that God

[1] B. Russell, *A Critical Exposition of the Philosophy of Leibniz* (1900), §79.

did something for which He cannot possibly have had a reason why He did it thus rather than otherwise, we should reply that his inference would be true if time were something apart from temporal things, for it would be impossible that there should be reasons why things should have been applied to certain instants rather than to others, when their succession remained the same. But this itself proves that instants apart from things are nothing, and that they only consist in the successive order of things; and if this remains the same, the one of the two states (for instance, that in which the creation was imagined to have occurred a year earlier) would be nowise different and could not be distinguished from the other which now exists."

From this line of reasoning we see that, if we adopt the principle that space is absolute, following Parmenides, then nothing else can exist *rationally*, and hence, correlatively, time must be not absolute but non-existent; alternatively, space, and likewise time, must be "relative." The co-existence of absolute space and time with objects in space and time, as in the Newtonian philosophy, leads to *logical* and *epistemological* difficulties. Idealist philosophers, e.g., Bradley, have taken their stand with Parmenides; relations are contrary to reason and the world of Appearance is an illusion. On the other hand, the world of Appearance, whether "real" or "illusory," is of paramount interest to the natural philosopher. Consequently, he endeavours, as best he can, to reconcile the existence of physical objects with the laws of thought. In so doing, his point of view has become almost inevitably "relativistic." Parodying Archimedes, he can express his ambition thus: "Allow me 'relations' and I will reconstruct the apparent universe."

(iii)

The third of the three main types of cosmological theory is that in which the basic framework is conceived as a set of mutually dependent entities which are capable, in principle, of communicating with each other. Einstein's Special Theory of Relativity is distinguished from Newton's Natural Philosophy by this difference, *inter alia*. There is no intercommunication between the Cartesian frames in Newtonian-Galilean systems. Indeed, it is not accidental that, in order to bring classical Kinematics into line with relativistic, the signal velocity, c, must be assumed infinite in the former and so cannot be used to measure intervals. In physical interpretation, c is taken to be the velocity of light, and, again, it may be not wholly coincidental that the first difficulties encountered by Newtonian physics arose in interpreting the properties of light. Nevertheless, irrespective of the explanation of specific phenomena, there is a

possible epistemological reason why any philosophy of physical phenomena which seeks to be *as rational as possible* should eventually come to be based on a framework of inter-communicating "observers." For, as indicated at the beginning of this essay, natural science is coming to be regarded as the study of those judgments concerning which "universal" agreement can be obtained, in principle; and agreement implies the "existence" of a community who can decide whether or not to agree. In the past these "observers" have been regarded as mere spectators whose role was to act as judges in the final appeal; but to-day, both in relativistic and in quantum physics, natural science is regarded as an activity rather than as an object for Platonic contemplation. Consequently, observers tend to become witnesses who themselves directly assist in determining the nature of the evidence.

Natural philosophy, implying potential universal agreement, is the search for "invariants" underlying physical phenomena. Successful prediction, the most striking of human achievements, turns on isolating significant "invariants." An important difference between the "classical" and the "relativistic" outlook is the transmutation of the concept "invariant." The traditional Parmenidean concept signified independence of time. The modern concept signifies identity, e.g., numerical or measurable, for all observers of a specified class, and is not restricted to the changeless. On this view, "uniformity" is not something additional to the concept of "agreement," as it is if deliberately restricted to the timeless, but is a logical consequence of the concept. Further, this abstract superiority of the new concept is reflected in its practical superiority. The history of science provides many examples of temporally fixed concepts developing into temporally variable concepts. The changeless biological species of Linnaeus has developed into the changing species of Darwin and Mendel, the indestructible chemical atom of Dalton has been replaced by the radioactive atom of Rutherford, the timeless classical concepts of mass and energy have been replaced by potentially variable relativistic counterparts, and space and time have lost their age-long unchanging character.

Of course, there are still some fundamental invariants which are absolute. In particular, as has been recently pointed out,[1] "Einstein's theory is not ultimately one of 'relativity' but rather one of 'invariance,' substituting for terms that had been held to be absolute but were now recognized to be relative (such as space, time) other terms (such as, e.g., the velocity of light) to assume an absolute function. Thus the term relativity in this case emphasizes the sacrifice without mentioning for what it was committed." However, those invariants which are *postulated* to be absolute can now be regarded as change-

[1] K. Duncker, *Mind*, XLVIII (1939), p. 50.

less *by definition*. In particular, the classical law of the universal constancy of the velocity of "light" *in vacuo* can become a freely chosen convention in a uniform material system. This is fundamental in Kinematic Relativity.

V

KINEMATIC RELATIVITY

Kinematic Relativity is based on the *abstract* concept of an observer, or mental monad, who experiences a temporal before-and-after sequence of events. The essential feature *defining* this sequence is its *irreversibility*. The co-existence of one other similar observer and of a signalling process of intercommunication is sufficient to give initial content to the time concept, provided the two observers do not coincide at all epochs. By definition, the signalling process is such that the epoch of return of a signal, emitted by one observer and reflected instantaneously on arrival by the other, is later than the original epoch of emission, except when the observers coincide. Conventional definitions can then immediately be assigned to the mutual distance, etc., of the two observers.

Although comparison of the signals with light is not essential *a priori*, it is physically suggestive and is reminiscent of the first act of Creation, "Let there be light."

The observers are assumed to satisfy the law of self-identity, viz., A is A at all epochs. It is assumed that the epochs which can be recorded, in principle, by A can be correlated with numbers, either continuously with the continuum of real numbers or discontinuously. In the first elementary analysis, for ultimate comparison with simple macroscopic physics, we adopt the former. (More sophisticated "quantum" refinements may be associated with the former, which presumably will give rise to epistemologically more recondite systems of dynamics.) In accordance with our concept of scientific method, we stipulate that the correlation of epochs with numbers by two observers shall be equivalent, so that the observers are on a reciprocal basis, keeping pace with each other. In this way *the fundamental clock concept can be defined operationally*, for it can be proved that any two observers can calibrate their clocks so that they are equivalent. There is no need to invoke an arbitrary ontological postulate concerning the measurement of time.

Thus, Kinematic Relativity begins *arithmetically*. To emphasize this distinction from General Relativity, which aims at the *geometrization* of physics, we say that Kinematic Relativity aims at its *arithmetization*. (In this respect the new method is in line with recent developments in pure mathematics; for it has been shown that elementary geometry can be based on the sequence of the integers, and,

according to Brouwer, this sequence can be related to our primitive intuition of time.) However, it is convenient to introduce at as early a stage as possible a typically geometrical concept, correlative to the purely arithmetical. The essential feature is *reversibility*. Just as two observers are sufficient to give initial content to the *irreversible* time concept, so three are sufficient for the basic *reversible* space concept. We freely choose a triad of observers, such that if a signal is emitted by any one, say A, is passed by another, B, to the third, C, then the time of reception by C must be the same as the time of reception by A of the signal following the reverse "path," *i.e.* travelling via B and emitted by C at the same epoch by C's clock as the first signal was emitted by A, according to A's clock. This is called the axiom of reversibility of "light" paths. It is the analogue in Kinematic Relativity of the axiom, basic in all metric geometries, that the "length" of a path is independent of the *sense* in which it is measured. This axiom eventually gives rise to conservation theorems, just as the axiom of time-order gives rise to theorems of an irreversible character.

It can be proved mathematically that a quasi-continuous system of observers, satisfying these conditions, is describable at will, by appropriate choice of clock-graduation, *i.e.* epoch-number correlation, either as uniformly expanding from a point singularity at a definite epoch (t-time) or as static for all epochs (τ-time). An infinity of other modes of description are possible, but these two, besides being the simplest formally, ultimately appear to be the most significant.

This kinematic system is called an "equivalence." The next step is to endow it with a definite geometrical form. This procedure depends on adopting an appropriate time-scale and a suitable convention for measuring, in terms of clock readings, those "light" paths which do not begin or terminate at the observer. The appropriate time-scale is that associated with the static form of the equivalence. It is not difficult to show, then, how a "public" geometry can be constructed, common to the whole system of observers. Thus, having adopted appropriate conventions for expressing distances in terms of the epochs of emission and reception of signals, it is not necessary to invoke the idea of a rigid rod as a primitive ontological postulate, in order to give content to the useful notion of public space. Hence, the foundations of Kinematic Relativity underpin those of "physical" geometry.

The existence of public space, subject to a concept of scientific method which entails congruent measurement, immediately suggests that the epistemologically appropriate geometries of a static equivalence are homogeneous and isotropic. Consequently, in accordance with our previous discussion, we conclude that the geometry of such

an equivalence is either Euclidean, spherical or hyperbolic. *When considering the system as whole*, there are reasons for assigning prior consideration to the last, but much of the subsequent theory is applicable, *mutatis mutandis*, to systems based on either of the other two geometries. *Locally*, of course, all three are Euclidean.

So far an equivalence has been considered simply as an abstract kinematic framework, analogous to the Cartesian frames of classical kinematics. However, in natural philosophy attention is directed to the problem of how a material system can continue to exist from one state to another. In Kinematic Relativity this transition from kinematics to dynamics is made by associating with each observer a "massive particle," *defined* by a "causal" law. In a brilliant analysis of the axioms of mechanics, Painlevé pointed out that the aim of natural philosophy has been to deduce the phenomena of motion rigorously from a principle of causality. In the past this principle has usually been taken to assert that, when the same conditions are realized at two different instants in two parts of space, the same phenomena reproduce themselves, only transported in space and time. After some discussion of measurement in classical mechanics, Painlevé concluded:[1] "Il est possible d'adopter une fois pour toutes et pour tous les phénomènes une mesure des longueurs et une mesure des temps telle que le principe de causalité soit vrai toujours et partout. Voilà le principe, ou, si on veut, le postulat fondamental, qui est inscrit en tête de la science."

However, in Kinematic Relativity there is no need to invoke an additional postulate of this type, with its arbitrary elimination of the possibility of variation in time. Instead, the equivalence of massive particles, now called a substratum, needs to be submitted only to the two principles of "identity" and "sufficient reason." Together, these constitute an effective "causal" law. The former implies that each massive particle should be anchored to a definite equivalent observer, while the latter necessitates that the symmetry of the "causes" must persist in the symmetry of the "effects" and *vice versa*. Consequently, since each equivalent observer is at a centre of kinematic symmetry, it follows that each massive particle associated with such an observer must be at a centre of dynamic symmetry. The mass distribution of a substratum must be compatible with this law. In general, we deduce that, if a substratum is not spherically symmetrical about each observer, it cannot satisfy the principle of dynamic permanence, unless certain constraints are introduced *ad hoc*. Hence, if a substratum is regarded as an epistemologically primitive construct, it must be spherically symmetrical about each constituent observer. Such a substratum is readily seen to be completely describable in identical terms by each such observer.

[1] P. Painlevé, *Les Axiomes de la Meconique* (1922), p. 11.

Thus we find that a substratum must satisfy a "harmony" which need not be *postulated* as pre-established in its entirety.

The next stage in building up our general abstract natural philosophy is to investigate the motion of a free particle. By a lengthy train of mathematical reasoning, it can be shown that this is uniquely determined by the properties already assigned to the substratum. No additional postulate is required. Of course, the description of this motion depends on the scale of time adopted, but in the τ-scale, according to which the substratum is static, it is rectilinear and uniform. Hence, in this system of natural philosophy, *the law of inertia can be derived from epistemologically primitive axioms.* Moreover, in agreement with the ideas of Mach, it refers to free motion against a (continuous) background of "massive" bodies and not in chimerical empty space.

Furthermore, we can investigate the hierarchy of laws of different degrees of complexity (vector, second order tensor, etc.) which is determined automatically by the defining characteristics of the substratum, just as, for example, in Euclidean geometry we can analyse the hierarchy of curves, etc., of different orders to which the axioms give rise. The comparison of the straight lines, circles, parabolas, ellipses, etc., of theoretical geometry with those of mensuration has its analogue in the comparison of the laws of the substratum with the laws of dynamics, electro-dynamics, etc., which appear to be empirically significant. At present a limited number of special postulates, *e.g.*, spatial tri-dimensionality, must be invoked to account for the laws of gravitation and electromagnetism. However, no additional postulate is required to derive the general laws of dynamics, although it is necessary to adopt the t-scale in order to effect the derivation mathematically. The results can be translated into the τ-scale, and the central question of this essay can then be answered. An elementary system of dynamics, similar to Newton's, with certain relativistic modifications, can be derived from epistemologically primitive axioms in a manner analogous to the Helmholtz-Lie derivation of the three elementary geometries of constant curvature. Moreover, just as these geometries can be formally translated one into another, so alternative forms of elementary dynamics can be constructed by appropriate re-graduations of time-scale.

VI

CONCLUSION

As already remarked, axioms, such as those of geometry, were regarded until recent times as self-evident truths. When they came to be regarded as conventional, it was natural that reasons should be sought why one system of axioms should be chosen rather than

another in constructing a particular theory. Poincaré insisted on the criterion of formal simplicity, at least for physical geometry, but, as Nicod pointed out, this is not the whole story, as it neglects not only empirical but also epistemological factors.

Hertz recommended that, in constructing an elementary system of natural philosophy or "image" of Nature, we should[1] "distinguish thoroughly and sharply between the elements in the image which arise from the necessities of thought, from experience and from arbitrary choice." In carrying out this programme Milne has thrown new light on the vexed question of "simplicity." The t and τ time-scales are those associated with the greatest degree of formal simplicity, but, whereas the τ-scale is the simpler scale to adopt for some purposes, the t-scale is simpler for others. Generally speaking, adoption of the τ-scale gives rise to formally simpler mathematics, and is the appropriate scale for conservation theorems. On the other hand, in many respects the t-scale is the more fundamental physical scale of the two, because only in it is the notion of irreversibility explicit. This remarkable dualism serves to justify the importance attached in this essay to epistemological, as distinct from purely formal, "simplicity."

The Procrustean bed of "simplicity" or "uniformity," to which the Mind makes its idea of natural law conform, is *a priori* in the sense that it is pre-supposed by the concept of scientific method. In opposition to naïve empiricism, Hertz has shown that[2] "we cannot *a priori* demand from Nature simplicity, nor can we judge what in her opinion is simple. But, with regard to images of our own creation, we can lay down requirements. We are justified in deciding that, if our images are well adapted to the things, the actual relations of the things must be represented by simple relations between the images. . . . Hence our requirement of simplicity does not apply to Nature, but to the images thereof which we fashion; and our repugnance to a complicated statement of a fundamental law only expresses the conviction that, if the contents of the statement are correct and comprehensive, it can be stated in a simpler form by a more suitable choice of the fundamental conceptions."

On the other hand, Wittgenstein has remarked,[3] "The fact, too, that it can be described more simply by one system of mechanics than by another says something about the world." Despite its core of truth, for we can imagine a world in which we could not isolate any objects amenable to a simple system of mechanics, this aphorism can be misleading. From its context, Wittgenstein appears to imply that, for all possible systems of mechanics, the criterion of a "best fit" with Nature is purely *a posteriori*. This is evident from his

[1] H. Hertz, *The Principles of Mechanics* (1899), p. 8. [2] *Ibid.*, p. 23.
[3] L. Wittgenstein, *Tractatus Logico-Philosopicus* (1922), 6.342.

famous analogy with the matching by a geometrical mesh of a white surface studded with black spots. The fact that a particular mesh gives the best fit, *e.g.*, square or triangular of a definite fineness, would appear to be *arbitrary*. Such a conception of natural philosophy makes its intrinsic simplicity inexplicable.

Likewise, the failure of the *a priori* metaphysical theories of Nature, constructed by the great speculative philosophers of the past, was mainly due to the adoption of insufficiently analysed arbitrary assumptions. By reducing the number of arbitrary assumptions, we increase our expectation that natural philosophy will provide a powerful method of interpreting physical phenomena. Thus, Newton's mechanics, Einstein's Relativity and Milne's Kinematic Relativity are successive approximations to an ideal system of natural philosophy, based solely on the concept of scientific method, regarded as a *policy* of congruent selection and measurement of phenomena by an appropriately defined community of hypothetical observers.

The assertion that Kinematic Relativity is a more satisfactory system of natural philosophy than previous theories has not passed without challenge. For example, Ayer has criticized Milne's claim to have derived certain laws of nature *a priori*. He writes[1] ". . . the question whether physics can be made to attain the status of a geometry has nothing directly to do with the character of the physical world, or even with the character of our knowledge of it. It is simply a matter of one's being able to organize the accepted laws of physics into a self-consistent deductive system, and then choosing to regard the premises of this system, not as propositions about matters of fact, but as implicit definitions. . . . For no one would say that a proposition expressed a law of nature merely because it was assigned a place in some self-consistent abstract system. . . . Indeed, Milne himself has stated that 'non-verifiable propositions about the world of nature have no significant content.' But how, then, are we to account for his asserting, as he does, that 'it is possible to derive the laws of dynamics rationally without recourse to experience?'" The answer to such criticism is that Kinematic Relativity is *not* just "some self-consistent abstract system." As we have seen, it can be constructed as the unique product of a fundamental conception of scientific method which is almost completely devoid of *arbitrary* elements.

Thus, the primitive congruent forms which we seek to identify, or approximate to, in Nature can be deduced without initial appeal to experience or, more accurately speaking, with a vestigial minimum of such appeal.

In a recent lecture,[2] Max Born has drawn attention to the fact

[1] A. J. Ayer, *The Foundations of Empirical Knowledge* (1940), p. 205.

[2] M. Born, *Experiment and Theory in Physics* (1943), p. 44.

that the rival theories of cosmology due to Milne and Eddington, respectively, both claim to be based on *a priori* principles, but are "widely different and contradictory." At first sight this appears to be a cogent argument for discrediting both. However, Born does not indicate that, whereas Eddington's theory is entirely concerned with the actual physical objects which he believes must exist, Milne's theory falls into two distinct divisions. In that which happened to be developed first but is logically secondary, the problem considered is the detailed description of the *material* universe, suitably "idealised." The results are *indicative* rather than necessary. In the other division, Milne has examined the *laws* which flow automatically from a fundamental concept of scientific method applied to the most primitive material system, which is itself defined as far as possible by this concept. (The validity of this "physical" division is entirely independent of that of the former "astronomical" division.) There is no counterpart of this analysis in Eddington's work where, *inter alia*, the law of inertia is taken as primitive. It is analogous to the attempt of Russell and Whitehead to derive pure mathematics from logic.

I began this essay with a paradox. We now see that some light has been thrown on its possible resolution. A prophetic paragraph by Whewell[1] comes to mind. I suggest that it be modified slightly by substituting "scientific method" for "cause" and "causation." . . . "It is a *Paradox* that experience should lead us to truths confessedly universal and apparently necessary, such as the Laws of Motion are. The *Solution* of this paradox is that these laws are interpretations of the axiom of causation. The laws are universally and necessarily true, but the right interpretation of the terms which they involve is learnt by experience. Our Idea of Cause supplies the *Form*; Experience, the *Matter* of these Laws."

[1] W. Whewell, *The Philosophy of the Inductive Sciences* (1840), p. 28.

THE POSSIBILITY OF AN AGREED ETHICS

A. C. EWING, Litt.D.

The editor suggested my writing an article on the question whether it was possible to provide an ethics based upon principles which would be agreed to by all enlightened men, and he further suggested that I should begin the article by stating clearly what morality is. That is a somewhat difficult task, because while "morality" might be defined as "living as one ought," it is a very disputable question whether and how this "ought" is itself to be defined, and I could not undertake to deal with this question by the way as an introduction to an article on something else. It is, however, clear that there is another sense of "ought" besides the strictly moral sense. We do use the term in cases where it does not entail that a man is neglecting his moral duty if he does not do what he "ought." For instance we say: "You ought to have seen that film," "You ought not to have made that move," "You ought to have seen through that argument," even "Hitler ought to have invaded England after Dunkirk" where we should have regarded it as the reverse of a good thing if he had done what we say he ought. In none of these cases are we asserting a moral obligation. For we do not ordinarily regard people as under a moral obligation to seek their own pleasure, nor to make certain moves in a game, and while we should say that in matters of serious concern a person is morally obliged to do his best to form a true view as to the merits of a relevant argument, we should not say that he was morally obliged actually to form a true view, for this does not depend solely on his will. And in the fourth instance the action is one which we should think morally wrong rather than morally obligatory. What is there in common between "ought" as used in these cases and the moral "ought"? It is that in each case the action fits the situation, either wholly, or with certain limitations, as in the last instance where we presumably mean that to invade England would have fitted in better with Hitler's ends in the given environment than did the policy Hitler actually adopted.

Now morality too must show itself in doing what best fits the situation, or at least in aiming at this. But clearly this is not all that we mean by morality. In a game or a purely prudential matter it is thought that, while we are mistaken or foolish if we do not do what we ought, the strictly moral notion of obligation is not relevant. Morality comes in where we feel ourselves subject to a binding principle that does not merely tell us what is best but requires us to do

it. It is, of course, impossible to explain what is meant by the moral "ought" except to those who have had the experience in question (as practically every human being no doubt has at some time), but there seem to be at least four elements involved: (1) the sense that a certain action is the best for me to do in the given situation (fits the situation best); (2) the sense that, if I do not perform the action, I shall be evil myself in a different and more serious way than that in which pain is evil and so shall be worthy of condemnation; (3) the sense that I am under a law which, while it does not compel in the sense of taking away my liberty to disobey it, yet has *authority* in another meaning of the term, so that morality consists in acting as if I were compelled by it; (4) the sense that it is not enough to perform the outward act required but that it must be done from a proper motive or, if "motives" cannot be controlled at the time of action, at least with my attention directed as far as possible towards the right ends. The first element is what it has in common with the non-moral "ought." The principles of morality are therefore those which we regard as both laying down what it is fitting to do in certain kinds of situation and also as having the obligatory power expressed under heads (2) and (3). We need not here discuss motives.

It is tempting to regard morality as merely a matter of choosing to do what one believes to be one's duty, not of having right beliefs or knowledge as to what one's external duty is. But there are moral errors, errors as to matters of value, as well as errors as to matters of fact; and though the latter are not moral errors, can we say the same of the former? If a man grossly overrates the value of material satisfactions or has an inadequate sense of the badness of telling lies, is that not a *moral* defect? Yet the man may still be doing what he believes to be right. It may be contended more plausibly that a man is at any rate not morally to blame for wrong opinions as to moral matters except in so far as they result indirectly from more or less conscious violations of duty or neglect to act "up to his lights" in the past, but in that case we must distinguish between "having a moral defect" and "being morally blameworthy." He would still be in a worse moral state than if he had the right opinions, though it might not be his fault that he was so. But in any case it would be admitted that the discussion of the principles of morality will be a discussion, not of the principle (true no doubt in a certain sense) that a man ought to do what he believes he ought, but of what beliefs on this subject are right. It will raise and try to answer the question what the principles are which make some actions morally obligatory and others morally wrong.

Turning to the general question of this article, i.e. whether it is possible to provide an Ethics based on principles which would be accepted by all enlightened men, it is plain that the word *enlightened*

gives rise to difficulties. The advocate of a particular ethical principle might always say that, since it is a right principle, those who do not agree with him are not in this respect enlightened, and it is quite possible that he may be right. There is no absurdity in supposing that there are some true ethical principles that so far have only been regarded as true by very few people, and even some that will never be regarded as true till the end of the human race by more than a very few people. (I should say the same if for "a very few people" were substituted "nobody at all," but obviously I am not being asked here about ethical propositions which never have been and never will be accepted by anyone.) In so far as a man does not accept as true an ethical principle which is really valid he is *ex hypothesi* not enlightened, and so if there are any true ethical principles at all they must be accepted by all enlightened men. But whether there are any true ethical principles is clearly not all that the people who ask the question—and they are numerous and worth answering—want to know, though it may be part. They wish to know not only whether there are some true ethical principles, but whether there is a prospect of overcoming the dissension which apparently prevails concerning the answer to the question what these principles are.

So let us try a different interpretation of "enlightened." Let us signify by it "enlightened in regard to truths other than ethical truths." But again this will not do, for it might well happen that a person who was very well qualified by knowledge and understanding to form a judgment about truths outside ethics, lacked the capacity required for ethical judgment. Suppose, for instance, he had led a persistently bad life, and suppose that there is some truth in the common view that persistent refusal to do what you believe to be right eventually very much diminishes your capacity to see what is right. In that case, however enlightened he was in regard to other matters, there could not be any reason to expect that he would be a particularly good judge of ethical principles, and there would be no need for anybody to be disquieted by his disagreement. In referring to a man for his opinion on an ethical question we think him "enlightened" not just because we rate highly his wisdom and knowledge on non-ethical questions, but rather because of our experience of his handling of other ethical questions. So "enlightened men" cannot be just taken as meaning here people who are enlightened outside ethics. The forming of ethical judgments is indeed an intellectual matter, but it is a commonplace that a man may be intellectually better qualified and more capable in some spheres than in others. Further, the intellectual judgments of ethics are more liable than most others to be affected by non-intellectual factors.

Yet I think this second way of approach takes us nearer to the real point of the question. Whatever precise view we hold as to the

nature of ethical judgments and the criteria of their truth, it must be admitted that there are two elements involved, a kind of intuitive insight or "moral sense," and a reasoning process. When two people disagree on an ethical question it is sometimes found that the disagreement can be removed by reasoning (including inductive reasoning from past experience), and in such cases we feel satisfied. But there are other cases where attempts to remove the disagreement in this way fail, and we seem to be left with an irresoluble clash in which both sides just appeal to their "intuition" and leave it at that. Now, if this were all that could be said in these instances, it would leave one with a kind of dissatisfaction; but if it were the case that we could hold all such differences to be due ultimately, not to an irreducible discrepancy in men's faculties of ethical intuition but to some other cause such as an intellectual confusion, a lack in the relevant experience, a psychological "kink" of the kind with which the psychoanalyst deals or any interference by emotion or desire with intellectual processes, the situation would at once become intelligible. In that case we could say in a different sense that people only disagree in ethical matters in so far as one at least of the disputants is unenlightened (as we all are in some respects). By this would not be meant merely that they only disagree where one is wrong—though even this much is not universally accepted in regard to ethics, since it would be denied by the subjectivists—but that, in so far as they disagree, it is due to some defect in one (or both) of them other than an ultimate difference in the faculty of intuition such that what appears white to A will appear black to B, however careful A and B are and whatever precautions they take to facilitate correct judgment. "Unenlightened" will then mean being confused or mistaken in a way which is on principle remediable otherwise than by merely waiting for a change in an unaccountable faculty of intuition, without having any idea what can be done to further the change in question. The assumption will be that we shall see correctly if the cause of error is removed, and that there are describable processes by which any cause of error can on principle be removed. (I insert the words "on principle" simply because it may still often be the case that none of the disputants thinks of the right way of removing the error in a particular case, or that the person at fault will not take it, as also occurs in disputes about questions of fact outside ethics.) This is the sense in which I propose to understand the question in this article. It is not the same as asking whether we could set up a system of ethical principles about which there is no disagreement among men "enlightened in regard to truths other than ethical truths," for a man who was enlightened in regard to these might yet be very liable to prejudices when dealing with ethical questions. I am not referring to an enlightenment which falls outside the ethical sphere altogether,

but to that kind of enlightenment which consists, not indeed in just seeing what is right in ethics, but in regulating one's thought and utilizing one's previous ethical and factual knowledge and beliefs in such a way that one is likely to see what is right. The question is now whether it is possible to hope for agreement in regard to ethical principles among all people who take these precautions. We must not exaggerate the importance of this question. Even if the answer is negative, it will not necessarily lead to ethical subjectivism or scepticism, but in fact a good many people have been made to doubt the objective truth of ethical propositions by the apparent occurrence of irresoluble conflicts of intuition, and if it can be shown that it is unnecessary to suppose there are any such irresoluble conflicts of principle it will be a point in favour of an objective theory which leaves some place for intuition.

Now I think in dealing with this topic we must distinguish three cases of disagreement. There is, firstly, disagreement about what is right or wrong in a particular case, e.g. whether I am justified in breaking a particular promise. Secondly, there is disagreement about the general philosophical basis of ethics, such as arises between e.g. a hedonist and a Kantian. Thirdly, there is an intermediate class of questions which are neither so general and philosophical as the second class nor so particularized as the first. You do not need to be a philosopher in order to grasp some general ethical principles: everybody learns at his mother's knee certain general principles such as that we ought not to steal and ought to be kind to others, and there is much more agreement about such principles than there is about philosophical theories of ethics. This is what one would expect: there is similarly much more agreement about the properties of chemicals than there is about the philosophical problem of the sense in which matter exists and how we know it. Now I do not propose to discuss the philosophical disagreements in this article: it is plain that philosophers are often in the most radical disagreement about their ethical theories and yet agree in practice in accepting the same general ethical code. Philosophical disagreements about ethics are rather disagreements as to what is the analysis of the main ethical concepts, or why certain kinds of action are right or wrong, or how we know them to be right or wrong, than disagreements as to what actions in fact are right or wrong. Thus a universalistic hedonist, a Kantian, and an egoist will agree that it is generally wrong to refuse to help others in need, but the first will give as his reason that to help them lessens the amount of suffering in the world, the second that it is unfair to expect kindness from others oneself and yet not render kindness to others, the third that our own nature will not develop healthily if we do not practise charity towards other men. Now in order to build up an agreed ethics for practical purposes it would be necessary to

obtain agreement on the third class of question, i.e. that of the relatively general laws, but not on the philosophical reasons why we ought to act in these ways. Nor, if there was agreement on general principles, should we be greatly troubled if people sometimes applied them differently in particular cases unless we thought that there was a covert difference of principle lurking behind the difference in application. What we must have in mind here are differences on the third, intermediate kind of question, and these are much less marked on the whole than differences on the other two kinds of question.

It cannot be claimed, however, that there is complete agreement even about these. The disagreement is, on the contrary, often very striking, especially when we consider different civilizations. But it may be explained in various ways. Firstly, what would be a wrong kind of action for an Englishman in the present English social background might well be a right action for a South Sea Islander in his kind of background. Or, rather, it would not be, except from an unreasonably external point of view, the same action. There is a dispute among philosophers as to whether the rightness or wrongness of acts depends solely on their consequences; but, however we answer this question, we cannot, if we are at all sensible, deny that considerations of consequences are at least highly *relevant* to the rightness or wrongness of acts. Owing to their different social organization and different psychology an action done among savages will really be liable to produce different effects from what is externally the same kind of action done in England, and for that reason general laws of ethical conduct applicable in England may not always hold among savages. I do not mean merely that savages will not recognize them, but that the laws may really not be the right ones for the particular savages in question. It is here not a case of people disagreeing as to what is right, but of one kind of action being really right in one set of circumstances and another being really right in another. So I perhaps should not have introduced it in the discussion of ethical disagreements, but I did so because, though not a case of a genuine ethical disagreement, it is very liable to be confused with such.

Secondly, primitive savages are liable to hold very different opinions about matters of fact from those held by us, and therefore they will often attribute to an action quite different consequences from those attributed to it by us. If human sacrifice did really stop pestilences and eating the body of a dead man did really enable the eater to acquire his virtues, human sacrifice and cannibalism might perhaps be justifiable. Coming nearer home, there is surely little doubt that a large proportion of our ordinary disagreements about ethical questions are mainly due to a difference of opinion as to the likely consequences, that is a difference of opinion as to fact and not a difference in instinctive ethical insight. They could therefore con-

ceivably be removed simply by a greater development of the natural sciences, especially psychology (except in cases where the fact under dispute is one the acceptance of which presupposes metaphysical assumptions on which there is disagreement, e.g. where somebody asserts that a practice is wrong because it is forbidden in the Bible, on the ground that the Bible is inspired by God, and then it would be a difference in metaphysics, or at least general philosophical outlook, and not in ethics, which prevented agreement).

But it would be quite unreasonable to say that there is no such thing as a difference of view about ethical principles not due to differences as to matters of fact or supposed matters of fact outside ethics. It does not follow that there can be no technique for removing those differences too. No doubt some of them are due to intellectual confusions which could be removed by a careful attention to distinctions such as those with which the moral philosopher deals. E.g. a good many people confuse the notion that some action is bad in itself with the notion that it is always wrong to do it even in order to avoid a greater evil. Some people accept a general law on authority and apply it without discrimination, or interpret what is, rightly understood, a very good rule in a stupidly external way. Others assume that, because their motive is right, they need not bother about consequences. Ethical disagreements resulting from such causes may be removed by argument and careful explanation if the people concerned are willing to listen to this and have sufficient intelligence to profit by it.

Still no one can claim that all differences in ethical judgments spring from these sources. There remain genuine differences as to valuation not dependent on argument, authority, or varying beliefs as to matters of fact. To remove such differences one would require a different technique. It is a well-known fact that our ethical valuations may be perverted by our desires, conscious or unconscious, and our emotions, and therefore the removal of ethical disagreements calls for remedial measures to deal with these, whether such measures are taken by a "psychoanalyst" or at a more common-sense level by an intimate friend. No doubt in practice such measures will not always succeed, if only because people will not always make the effort of will required to control their desires and overcome their prejudices, but they cannot blame their capacity of moral insight for that. A man cannot expect to attain the truth in ethical matters if what he is really seeking is not to attain the truth but to excuse himself for doing what he wants.

There are still other cases of disagreement which do not fall under any of the heads we have yet discussed and for the removal of which other methods are required. In some cases the way to remove an ethical difference would be to supply a disputant with an experience

which he lacked. A man might cease to maintain a harsh ethical principle which he was defending if he had the experience of really feeling himself how hard it was to be treated as he proposed treating others, or if in default of this he had his sympathetic feelings aroused by vivid descriptions of the plight of the victims of his principle. Or if a man could have certain experiences from which he is debarred by lack of education, he might, through coming to know what they were like, come to ascribe a value to them which he would not have ascribed before, and consequently alter his ethical principles. For instance, the ethical materialist might, if better educated and rendered capable of understanding philosophy and appreciating art, revise his view that these were of negligible value. To supply the lacking experiences is often by no means a simple matter and will commonly involve a lengthy process, which the person concerned may resist, but this is only to say that this method, like some scientific tests, may be incapable of application in particular cases.

Again, one might confuse a mere feeling of physical or aesthetic disgust with a genuine intuition that something was morally evil, or one might confuse an aesthetic or moral experience with one which was not aesthetic or moral and therefore think something aesthetically or morally good to which one felt attracted on other grounds. For instance, a man may think he is feeling moral satisfaction at the justice of the punishment which has befallen an evil-doer when he is only feeling the pleasure of revenge because a man who wronged *him* has suffered, or he may think that a particular novel is a great work of art because the story is very exciting. If it was suggested to him that he had committed such a confusion and he directed his attention to the matter with this suggestion in mind he might change his view, and this would no doubt happen much more often if people always made a real effort to overcome their prejudices.

In order to explain ethical disputes there is then no need to suppose that there is ever an irreducible difference of intuitive faculty between two persons as regards general ethical principles such that they have conflicting intuitions and could not be brought into agreement by any of the processes mentioned *if* there was goodwill and somebody thought of the right method. It would be odd if our intuitive faculty of itself for no reason outside itself produced different judgments in one person from those which it produced in another or if we were just born with these differences. I do not know how to prove that such differences can never occur, and they would not invalidate ethics if they did, but there is no reason whatever to suppose they do occur. There are so many other ways of explaining ethical disagreements that there is no need to introduce that supposition. But intuitions are closely bound up with good or bad inferences and liable to be confused with them.

On the other hand, since people differ in the degree of capacity they possess in all other matters and their capacities are susceptible of development, it may be the case that one man is capable of seeing that A is good or evil while another man would have no intuition on the subject even if he had the same experience, A. This must be distinguished from a case of conflicting intuitions, because what we have here is merely the absence of an intuition in one man which is present in another. But, though itself not a positive conflict, it might easily lead to a positive conflict of ethical views. This would occur if a certain act promoted one kind of valuable experience but interfered with another kind. In that case a person who did not see any intrinsic value in one of these kinds of experience would be liable to make a different judgment as to the rightness or wrongness of the act from one who saw value in both. The conflict would then not be a direct conflict of intuitions, though it might be confused with such, but a conflict between two inferred conclusions where one of the disputants assumes a premiss as given intuitively which the latter does not. But it would be impossible to tell whether the difference was due to an inability on the part of the one who does not accept the intuitive premiss to have the experience in question in a pronounced form and clearly distinguish it from other experiences associated with it, or to an inability, though having and distinguishing the experience, to see that it was good. Capacity to see the intrinsic goodness or badness of something may develop *pari passu* with the knowledge of what it factually is like, and the latter knowledge obviously depends on our being psychologically capable of having the experience in question. For instance, though I may form a sound intellectual judgment in words of what will probably happen to other people, I shall be less qualified to realize what the experience will be like for them, and therefore to see the goodness or badness of it, if I am lacking in sympathy; and my failure to see that certain works of art are beautiful is probably due to my not having the sort of experience that those who appreciate them have when they see them. But in any case capacity for intuition of values is not just to be accepted as an unalterable datum. There are methods of improving even a faculty of intuition. Of these the most efficacious of all are perhaps the well-known ones of (*a*) acting up to the best ethical insight one has, and (*b*) cultivating one's sympathy with other people. Further, we can never know in regard to any unresolved difference that it is not due to one of the causes I have already mentioned, so we must always be on the look-out for these and not blame our intuition. Inability in some people to see that something is good or bad need cast no more doubt on ethics than inability on the part of many people to understand the calculus or the theory of relativity casts on higher mathematics, and there is actually a greater variety of possible

explanations in the case of ethics than there is in the case of mathematics.

All this is highly important when we come to considering whether value-judgments are objective, for the occurrence of differences in ethical beliefs and the supposition that there was no way of settling these, but merely an irresoluble conflict between two alleged intuitions, is the chief, though not the only, cause which has led people to put forward subjectivist views. Lord Russell says that "since no way can be even imagined for deciding a difference as to values, the conclusion is forced upon us that the difference is one of tastes, not one as to any objective truth";[1] but what I have said shows that we can imagine plenty of ways. They will not always lead to success, but is there any sphere in which human efforts always do succeed? Even the methodology of science cannot lay down rules which will guarantee that any scientist can make discoveries or show him in detail in advance how to prove the truth to others of the discoveries when made.

Perhaps the most common cause of differences both in ethical and theoretical matters lies in the difficulty of balancing different considerations against each other so as to do justice to them all. This occurs chiefly in dealing with particular cases which come under conflicting rules, but that problem cannot be separated completely from the problem of determining the rules. This source of difficulty and disagreement again constitutes no argument against the objectivity of ethics. It must also occur in any complicated dispute as to matters of fact, e.g. in historical research, for just as it is difficult to balance against each other different goods or different reasons for action, so it is difficult to balance against each other different probable arguments, different reasons for and against a theoretical view as to matters of fact. The strength of the probable arguments cannot usually be measured numerically, any more than the different goods at stake in action, and so at some point or other one must rely here also on an estimate of their strength which cannot itself be further justified by mediate reasoning and on which different people will not always agree. If we are going to conclude because of such difficulties that actions are objectively neither right nor wrong, neither good nor bad, we shall have likewise to conclude that disputed historical events neither took place nor did not. The chief cause of the differences of opinion which result from this balancing probably lies in the attention. One man will attend more to one aspect of the situation, another to another, and that to which we attend more will naturally be more vivid to us and be given greater weight than that to which we attend less. It may even be that, if we saw at the same time all the consequences of an action clearly and equally vividly as

[1] *Religion and Science*, p. 250

they would be in their factual character, we should always agree as to which set of consequences was better or worse; but apart from the difficulty of estimating what the consequences will be it is practically impossible in cases which are at all complex to keep our attention fixed equally on all the relevant points, and we are liable to ignore or under-value those to which we attend less. Further, we commonly do not make sufficient effort to attend to all sides of the case. We attend too much to what is in accord with our wishes and therefore fail to arrive at the truth. But that is our own fault; a resolute endeavour to attend to everything that is seriously relevant must be added to the methods which I have enumerated for increasing the chances of arriving at agreement.

As a matter of fact there is very much more agreement about ethical principles than one would expect from the way in which many people talk. David Livingstone said that nowhere did he find that he needed to teach the African savages the ethical, as opposed to the religious, portion of the Decalogue. There is almost universal agreement that, at least within a certain group of which the individual feels himself a member, killing (except in self-defence or as a punishment), theft, disregard of other's needs, infliction of pain, shirking of common burdens are in general wrong. Where they are justified it is only as a means to avoid a still greater evil. The numerous violations of these rules must not be taken as indications that those who violate them do not think them good rules or that they regard their own action as right. Usually all that the violation indicates is that someone would rather satisfy his desires than be moral. Even a thoroughly bad man, if he was sure that he could attain the same result equally well by honest or dishonest means and there was in his opinion no additional advantage to be gained by using the dishonest means, would probably always prefer the honest. I have heard it said of somebody that "if there was an honest and a dishonest way of getting the same thing, he would prefer the dishonest in order to keep his hand in," but even so he would be preferring it not for its own sake but for the sake of "keeping his hand in," so that he might be better able to employ dishonest means on other occasions when he needed them. Even Hitler showed no lack of ability to appreciate the badness of breaking promises when he had to experience such action directed against himself by the Badoglio government in Italy. For reasons already indicated the application of rules to particular cases presents more difficulty.

Serious disagreements in ethics occur, however, about the extension of the rules beyond a certain social group. This seems to me a question of consistency; if the rules are valid at all there can be no justification for stopping their application where the Nazis or fanatical nationalists in general stop, or for going back to those

savages who hardly apply moral considerations to anything outside their own tribe. No doubt a person who stops there need not contradict himself logically: there is no self-contradiction in saying "I ought to be kind to members of my own tribe and to nobody else." But he will be inconsistent in the sense of admitting in one case (the case of his own tribe) what he refuses to admit in other cases without a relevant difference. He is not a subjectivist or ethical sceptic, he claims that it is really wrong to steal from other members of his group, but he neglects to apply this principle outside the group. I imagine he would hardly claim that he saw intuitively that the rules did not apply to his relations with members of other tribes or nations, except in so far as he confuses morality with law; it is rather that he simply does not see, or that it does not occur to him to draw, the conclusion which we do. It is thus rather a case on his part of not seeing what we see than of seeing something which conflicts with what we see, and on our part not a case of seeing new ethical principles but rather a case of consistently applying those which are already seen. For a lack of consistency is shown not only in making self-contradictory statements or holding views which conflict with each other; it is shown also in holding a view in one instance and yet refusing to hold it in another where it has equal justification. If pain is evil in one's own tribe or nation, it is evil also in another, and that carries with it an obligation to relieve it if the opportunity is presented of doing so. Of course the fanatical nationalist may not expressly lay down in so many words the principle that he or his state has no obligation to the members of other nations. He may merely concentrate his attention on the apparent gain to his own group and ignore everything else, or, at a more refined stage, he may persuade himself that the only way in which he can serve humanity is to serve his own group, and then misapply this, within limits reasonable, principle to justify any aggression. Or he may not think at all about the reasons why his action is right but just take for granted that it is right, whether on impulse or on authority. Obviously no holder of an objective view of ethics need be troubled because people do not arrive at right ethical views when they will not make the effort to think or to attend to more than one side of the question. Did the Nazis who came to believe that it was right to send Jews to concentration camps really want to arrive at the truth about the ethics of doing this or only to have an excuse for what they wished to do in any case? If a man does not want to or will not make any effort to arrive at the truth about a certain matter, it is not very surprising that he should not be successful in doing so.

But, I may be asked, surely you could never persuade a convinced Nazi to agree with the kind of ethics current among democratic peoples? Surely he would not be impressed at all by what I

have to say? But the question I have to consider here is not whether in fact he would attend to me. We all realise that the "re-education" of the Nazis presents the greatest practical difficulties, but I am not discussing whether an agreed ethics is possible in the sense that it can be achieved in practice. I am not indulging in political prophecy. What I am asking is whether it could be achieved if there were a will on both sides to listen to what the other had to say. It is surely not absurd or utopian to suppose that with this and with suitable psychological treatment (if he would accept it, and that is the big "If," far too big to swallow in his case), even a Nazi might be brought into agreement with us. A person cannot be brought into agreement even with the established truths of science if he will not listen to them. I am not saying that all differences in ethical belief will ever be eliminated, only that there are methods by which they can progressively be reduced and that there is no obstacle inherent in the nature of the subject-matter to their elimination. That they will all be thus removed we cannot expect any more (or rather, because of the psychological difficulties, a good deal less) than that all humanly discoverable scientific truths will ever actually be discovered by men.

PANTHEISM IN SPINOZA AND THE GERMAN IDEALISTS

F. C. COPLESTON, S.J., M.A.

In an essay on pantheism Schopenhauer observes that his chief objection against it is that it says nothing, that it simply enriches language with a superfluous synonym of the word "world." It can hardly be denied that by this remark the great pessimist, who was himself an atheist, scored a real point. For if a philosopher starts off with the physical world and proceeds to call it God, he has not added anything to the world except a label, a label which, if we take into account the ordinary significance of the word "God," might well appear unnecessary and superfluous: one might just as pertinently say that the world is the world as that the world is God. Neither the Jew nor the Christian nor the Moslem understand by "God" the physical world, so that, if someone calls the physical world God, he cannot be taken to mean that the world is God according to the Jewish or Christian or Moslem understanding of God. Does he mean any more than that the physical world is ultimately self-explanatory, that no Cause external to the world, no transcendent Being is requisite or admissible, i.e. that there is no God? If that were all there is in pantheism, the latter would indeed be indistinguishable from atheism, and those who called Spinoza an atheist would be fully justified.

As far as Spinoza is concerned, I do not hesitate to say that his system, when looked at under one of its aspects, is indeed atheistic, and that, so far as that aspect is concerned, the word "God," which he employs so frequently, is a superfluous label. Some of those who accused Spinoza of atheism had a personal and interested motive in doing so, for, having undergone the influence of Descartes and realising the apparent connection between Spinozism and Cartesianism, they were eager to dissociate themselves from a system, which, at least superficially, seemed to have its roots in the philosophy of the Frenchman, and what more effective means could they employ to dissociate themselves from that system than abuse of its author?[1] But even if some of those who accused Spinoza of atheism had an interested motive in doing so, it does not follow that

[1] I do not say this out of any hostility to Cartesians, long since dead, nor, of course, do I accuse them of any insincerity: their attitude was only natural in view of some consequences which, as Leibniz hints, might seem to follow from Descartes' doctrine.

this judgment was necessarily without foundation. From one point of view Spinozism can be regarded as the utmost possible generalisation of the attitude of contemporary science towards the material world, as a linking up of all phenomena, physical and psychical, past, present and to come, in one great interconnected system, one intelligible and self-dependent cosmos. Looked at from this point of view, Spinozism is atheistic, for to call the cosmos God is to denude the term God of all its traditional significance and to render it meaningless. If the cosmos is "God," there is no God, and the man who declares that there is no God is an atheist. Thus, if taken in its deterministic, mechanical, scientifico-mathematical aspect, Spinozism is an atheistic system.

This aspect, however, is not the only aspect under which the philosophy of Spinoza can be regarded. Beneath the logical schematism of this massive system, with its definitions and axioms, its propositions and proofs, its *Q.E.D.*'s and its corollaries, which appear so cold and dispassionate, there can be heard the cry of a *Weltschmerz*, of a hunger for the Infinite. In the *Tractatus de intellectus emendations* Spinoza speaks of the vanity and futility of the pursuit of riches or fame or pleasure, and declares that it is only love for a thing eternal and infinite which is the source of unmixed joy, while his ethical system culminates in the *amor intellectualis Dei*. It is true that Spinoza's philosophy is extremely intellectualist, and that his conception of love as an active and rational emotion is scarcely what we ordinarily understand by the term love: but it is also true that there is discernible in his thought and attitude a reaching out beyond the transitory phenomena of experience to the Infinite Being of which they are the manifestation. God, for Spinoza, was certainly not the personal Creator-God of orthodox Judaism, but He was the Infinite, the ultimately real, possessed of an infinity of attributes, and the character of infinity, the ascription to God of attributes unknown to the human mind, most probably permitted a psychological attitude towards the infinite Substance which Spinoza could hardly have adopted towards the actual world of experience considered precisely as such. In his *Ethics* Spinoza starts with God, the self-explanatory Substance, the principle of intelligibility, so that God was, in a sense, something more real than His manifestations or modes, more ultimate, as though God were the ocean and God's finite modes, the existential duration of which is transitory, the waves and ripples on the ocean's surface. Substance may not exist apart from its successive modifications, determined in their nature and succession, but it is easy to see that, in so far as Spinoza's mind was fixed on the infinitude of the Substance, the phenomenal world could take on the appearance of comparative unreality: God was All. From this standpoint Spinoza

can scarcely be called an atheist, for, though he does not conceive God as Spirit, it is the world, rather than God, that he suppresses. "Spinozism," says Hegel, "might really just as well or even better have been termed Acosmism (than atheism), since according to its teaching it is not to the world, finite existence, the universe, that reality and permanency are to be ascribed, but rather to God alone as the substantial."

But if there is an aspect of Spinozistic pantheism under which it cannot simply be termed atheistic, it does not follow that it escapes from other objections which can be levelled against it precisely in so far as it is pantheistic and not atheistic. For example, if one starts with the infinite Substance, God, it is impossible to demonstrate that the modifications of Substance must follow or to explain their appearance, for an infinite Substance will, *ipso facto*, realise all its potentialities in undivided simplicity: to speak strictly, it will have no potentialities, but will be Act pure and simple. I am not, of course, demanding that Spinoza should deduce the actual series of particulars, for he observes that to do this is beyond the power of the human mind, which is a reasonable answer, even on the pantheistic hypothesis. But, since it is his express teaching that contingency has reference only to the imperfection of our human and limited knowledge, it follows that the modifications of Substance are in themselves determined and necessary, not contingent, and one is justified in demanding a demonstration of this necessity in general, for it is essential to the pantheistic position. Again, when Spinoza distinguishes the different levels of cognition, from *imaginatio* up to the intuition of the Totality, he does not explain how inadequate ideas can exist at all. If they exist, then they must be referred ultimately to God, since all that exists is in God: but how can God have inadequate ideas, even under and through His finite modifications? The notion that one is a person distinct from God may be an incorrect notion, but, if so, how does it come about that such a notion can be formed and is frequently formed? Moreover, the difficulties attending Spinoza's ethical system are obvious to all serious students of his philosophy as a whole. Blyenbergh's controversial letters may or may not have been tiresome productions, but, as the late Professor de Burgh remarked, his objections remained unanswered for the very simple reason that they were unanswerable. Of course it may well have been better for Spinoza to be inconsistent rather than consistent, since his rational ethic gives evidence of his personal high-mindedness, but internal inconsistency cannot be considered a testimonial for a system of philosophy. Spinoza, unlike Descartes, did not start from a fact of experience but from a hypothetical unique Substance, a metaphysical hypothesis not given in experience, with the result that he had, "absent-mindedly" (as Kierkegaard

remarked *apropos* of Hegel), to forget and leave unexplained data of experience which obviously needed explanation. Leibniz, on the other hand, though convinced, like Spinoza, that Reality is an intelligible and significant system, was led by his regard for experience, for individuality, for activity, to postulate a different kind of unity from that postulated by Spinoza, maintaining both the plurality of individual beings and the significance and intelligibility of the hierarchy of being as a whole.

The hostile attitude to Spinozism which prevailed for a long time gave way to a new attitude towards the end of the eighteenth century, and Novalis' description of Spinoza as the "God-intoxicated man" is well enough known. The Romantics, however, tended to look on Spinoza through their own coloured spectacles. That the latter's logical schematism was shot through and enlivened, for Spinoza himself, by a religious awe in presence of the Infinite and by a conformity to the "Divine Will" is, as I have suggested above, probably true: but any personal piety there may have been on the philosopher's part should be traced, not so much to his system and its effect as to his upbringing in a Jewish family and to a transference to *Deus-substantia* of the psychological attitude that an orthodox Jew would manifest towards the Creator-God of Judaism. There is little indication in the pages of Spinoza's writings that he felt any of that emotion in the face of phenomenal Nature which romantic poets have shown (though that, of course, does not prove that he never felt such emotion): he speaks little, if at all, of the beauty of Nature. He was doubtless filled with admiration and wonder at the sight of the reign of law, at the majesty of the cosmos as an eternal, significant and coherent system, just as he found that he could not be satisfied with any merely finite good: but we should certainly not look to the *Ethics* for the poetic, quasi-mystical emotion manifested by romantic poets towards the natural Totality, an emotion partly inspired by the keen perception of natural beauty, as also by a feeling, not essentially based on science and mathematics and logical reasoning, of one Life pulsating in Nature as a whole and in the human frame. If one can safely refer to Faust's famous declaration to Margarete without laying oneself open to the charge of having dubbed Goethe a "romantic," Spinoza would never have said, *Gefühl ist Alles:* it was not for nothing that he spoke of the love of God as the *intellectual* love of God. The revival of interest in Spinoza dates from the time of the correspondence between Jacobi and Mendelssohn, and it is only natural for us to-day to look back on his system in the light of German philosophy: but we should do well to remember that Spinoza's acquaintance was with Jewish Neoplatonic speculation, with Cartesianism, and with a certain amount of Scholasticism. The conception of the divine Substance, modified

in its manifestations, might be termed a conflation of the Neoplatonic emanation theory with the Scholastic doctrine of created substance and accidents, a conflation made and thought out in face of the Cartesian dualism, though itself strongly influenced by Cartesian themes. Spinoza was a philosopher who was convinced that the intellect can find its satisfaction only in the Infinite, and in this respect his thought, despite its mathematico-scientific aspects, betrays some kinship with that of Plotinus and St. Augustine: but he was not an aesthetic romanticist.

When one turns from the philosophy of Spinoza to that of the elder Fichte, it is as though one were transported from a gallery of sculpture to the stand at an Olympic race: the atmosphere of quiet contemplation gives place to one of energy and activity. Generalisations, of course, are often inaccurate and loose, and Spinozism cannot justly be called a merely static philosophy, while there is more in the system of Fichte than an emphasis on action; but it is probably not fanciful to see the difference in character between the retiring Jewish lens-grinder and the patriot who delivered the Addresses to the German People and wished to go as philosophic chaplain to the Prussian troops in the war of liberation reflected in their respective philosophies. Moreover, the dominion of the geometrical method and of mechanical physics had been invaded by a new sense of historical becoming, of development, which was, be it remarked, partly due to the work of Leibniz, in spite of those who would see in his philosophy nothing but logic and mathematics exceeding their limits. German speculative idealism was certainly influenced by Spinoza, but the Spinozistic pantheism was rethought in a more dynamic form and (a most important point) it had passed through the fire of the Kantian Critique, a fact which rendered a new approach inevitable, for the post-Kantian idealist would be unable to start from the concept of substance.

Kant affirmed the transcendental ego as a logical condition of the unity of experience, though it was not for him an object of theoretical knowledge. Fichte seized on the idea of the transcendental ego (as the I-subject, which is always presupposed by the I-object, but never itself becomes object) and tried to deduce therefrom empirical consciousness. Protesting that the Kantian thing-in-itself was an unnecessary piece of luggage, once given the Kantian Critique, he declared that by denying the existence of the thing-in-itself he was but rendering Kant consistent with himself, a declaration which may have been largely justified in fact, though Kant himself rejected the claim. However, whether Fichte was fulfilling Kant or maiming him, he obviously could not, in making the object the creation of the subject, make it the creation of the empirical subject as such, since it is clear enough that the object is something given to the

empirical subject, something which it finds in existence, with which it is confronted. He had, therefore, to derive the object, not from the empirical subject but from the meta-empirical subject, the transcendental ego. The latter, then, became his starting-point, and from the transcendental ego he attempted to deduce dialectically the division of experience into the empirical subject and the empirical object. Kant's logical condition of experience thus became a real and ultimate principle of explanation in regard to human experience.

As far as a mere theory of knowledge is concerned, as far as there is question only of a logical analysis of experience, one might treat the transcendental ego as a principle of explanation without committing oneself to any definite statement as to its ontological status, without affirming that there is one transcendental ego or a plurality, without coming down definitely either on the side of idealistic monism or on that of pluralism. After all, Aristotle taught the existence of an active intellect, but, so far as we are concerned, it remains doubtful whether he postulated one active intellect common to all men, as the Averroists interpreted him, or ascribed an individual active intellect to each individual man, as St. Thomas Aquinas interpreted him. But it is obviously a short step to take from the assertion of the transcendental ego as ultimate principle in the analysis of experience to the assertion that it is the Transcendental Ego with capital letters: in fact in a fully idealist philosophy this transition would seem to be inevitable, if solipsism is to be avoided, and Fichte stoutly denied that he was a solipsist. In Fichte's system, therefore, Kant's transcendental ego blossomed out as the Absolute Ego, the ultimate source of finite subjects and objects (or rather of finite subjects and of finite objects *via* the former), the modest Kantian theory of the subject's active constitutive function in knowledge turning into a system of Transcendental Subjective Idealism.

It is not, however, very easy to see exactly how Fichte regarded the relation between the finite consciousness and the Absolute Ego. It is obvious enough that he could not teach pantheism in the sense of simply identifying Nature with God and God with Nature, since Nature was, for him, no more than object-for-a-subject: in an idealist system of the type propounded by Fichte naturalistic monism was out of the question and also substantial pantheism. He could not identify God with Substance, if substance was something secondary and derived: the concept of substance was the result of the application of an *a priori* form, and that form was derivate and not ultimate. (This inability to admit the substantiality of God was one of the reasons why Fichte was accused of atheism, a charge the justice of which he indignantly denied.) But what was the precise relation between the Transcendental Ego and the finite

ego? Was the latter a canalisation, as it were, of the former, an emanation of the unitary Ego? Such would be the pantheistic interpretation, and there is certainly much in the philosopher's writings which would seem to make such an interpretation not only justifiable but also inevitable. Yet it must be remembered that the reason why the world is posited is, for Fichte, that it should serve as a field for free moral endeavour. There is one moral law, but it is manifested in the particular moral vocations of finite individuals, and, in so far as they fulfil their moral vocation, they contribute to the concrete realisation of the moral world-order. This fine conception. with its emphasis on moral activity and freedom, not only corresponded to Fichte's energetic character, but is also in conflict with any complete pantheism, since the latter is, logically speaking, deterministic in character. However, even if, as is probable, Fichte's deduction of the finite ego is justly taken to imply a kind of emanation or a self-diremption of the Absolute Ego within itself, he went on in later years to develop a more religious version of his system in which the Absolute Ego or Moral Will appears rather as the Absolute Being, of which finite egos are the manifestations, and to which they should strive consciously to return, though no individual is ever completely absorbed or swallowed up in God. There seems to be envisaged an unending approximation to God, reminiscent of Kant's theory of the asymptotic approach to moral perfection: Fichte was too energetic in character to yield to the fascination of the idea that all individuals are at length completely merged in the one Being. He would not, it is true, allow that God is "personal," but that was because he regarded the ascription of personality to God as necessarily anthropomorphic, because he thought of God as supra-personal, which is not the same thing as infra-personal.

The strongly religious and more contemplative aspect of Fichte's later philosophy appears especially in his so-called popular works, works which Hegel dismisses in his *History of Philosophy* as edifying but irrelevant from the philosophic viewpoint. But though the lectures to which I refer may not have been composed from a standpoint which Hegel would recognise as adequately speculative, and though it is the standpoint of the *Wissenschaftslehre* which one has to take most into account when one is considering the historical connection between Fichte, Schelling and Hegel, the lectures are of some importance when one is considering the system of Fichte by itself, for they indicate the direction taken by the philosopher's thought in his later years. They smack somewhat of the pulpit, but all three of the great German metaphysical idealists began with the study of theology, and Fichte often tended to adopt the role of a philosophic preacher. Whether the character of his later works should be taken to indicate an advance from idealistic

pantheism to unequivocal theism or not, is obscure; but in my opinion Fichte never was an out-and-out pantheist. That his idealist standpoint effectually prevented his asserting pantheism of the Spinozistic brand, I have already noted, as also that his insistence on freedom and morality appears to be inconsistent with any rigorous form of pantheism. Leaving out of account the very great differences in content and atmosphere between their systems, one might institute a comparison between Fichte's thought, at least in its more developed stages, and that of Plotinus. The latter did not believe in free creation out of nothing and employed the metaphor of emanation to express the procession of subordinate hypostases, and ultimately of the world, from the One, but he insisted that the One was not in any way diminished through the emanation. So Fichte, in my opinion, while not prepared to accept literally the Christian doctrine of creation, did not believe that the Absolute is diminished or changed through the emergence of finite consciousnesses. In other words, neither the system of Plotinus nor that of Fichte can be termed unequivocal theism or unambiguous pantheism. If immanence receives the emphasis in Fichte's earlier thought, the transcendence of the Absolute is more emphasised in his later development, and that is probably as far as we can get.

The system of Fichte was a system of transcendental subjective idealism, characterised by a strongly marked ethical interest: in the system of Schelling a romantic view of Nature is substituted for Fichte's theory that Nature is a mere means to moral endeavour, and the latter's dynamic attitude gives place to one more contemplative in tone, artistic creation and aesthetic experience receiving the emphasis rather than moral striving and self-conquest. To speak of "the system of Schelling" may occasion surprise in view of the fact that historians of philosophy have been accustomed to discover a number of philosophies held successively by Schelling; but, on the one hand, the stages of his thought do not constitute separate philosophical systems so much as the result of further reflection on positions already attained, so that they exhibit a more or less continuous process of development, while, on the other hand, it is the middle stage which is really characteristic of Schelling, more so than his earlier Fichtean standpoint or the somewhat bizarre speculations of his later years when he was trying to counteract the influence of Hegel at Berlin. I confine my attention, therefore, to the stage (or stages) represented by the philosophy of Nature and the system of Identity.

As he moved away from the position of Fichte, Schelling came to conceive of Nature as a meaningful organism, a totality, striving upwards towards consciousness under the impulse of the World-soul or principle of organisation in the cosmos. Nature is not the dead

material of our duty, but is a dynamic process in which things are but transitory products of an endless becoming. There is one stream of Life in Nature, but Nature, which is always striving after the perfect representation of the Absolute, differentiates herself on various specific levels into those individuals, the succession and transitory character of which betray the fact that they are unsuccessful attempts to manifest the Absolute. In its highest production, however, human consciousness, Nature is enabled to turn back on herself and to realise her unity in reflection. The highest development of consciousness is achieved in artistic genius and its creations, for in the work of art the Infinite and the ideal are perfectly represented in finite form, and the synthesis of freedom and necessity is brought about.

If in his philosophy of Nature Schelling proceeded from the side of the object, in his system of transcendental idealism he started with the subject and tried to show how spirit issues forth from itself until it reaches its supreme expression in aesthetic experience and its fullest objectification in artistic creation, the two poles of spirit and matter, subject and object, being united in the work of art and perfectly fused together. Reflection on this finite union of spirit and nature led Schelling to the conception of the Absolute as Spirit and Nature in identity: the Absolute is the pure identity of Being and Thought, standing behind all finite manifestations, all differentiations, as the vanishing-point of all differences, the all-embracing and undivided Identity. (Schelling proceeded to introduce from Platonism an eternal world of Ideas, God's intuitions of Himself, the true things-in-themselves, which are the exemplars of all empirical things, and which it is the sublime function of the artist to represent in the concrete work of art.)

Schelling's conception of Nature as a totality, a living and dynamic process, a self-organising cosmos, was thoroughly romantic in character, as also was the position assigned to the artist, to aesthetic contemplation and the work of art. Of course, Schelling was influenced by other philosophers who could scarcely be classed as romantics (e.g. his theory of Nature below man as slumbering spirit is reminiscent of points in the Monadology of Leibniz, while his doctrine of the work of art as the synthesis of freedom and necessity is partly an attempt to settle a problem of Kant), but he was the great philosopher of the German romantic movement, fully imbued with the general romanticist worship of the Totality. For the logical and mathematical schematism of Spinoza he substituted the conception of life, of movement, of Nature as a living unity, a self-unfolding organism, and in this he may be said with justice to have constructed a romantic and poetic Spinozism. But whereas the intuition postulated by Spinoza was primarily an intuition of the

Totality as an articulated system, of Substance in its manifestations, and of the modifications according to their place in Substance, Schelling's intuition of the Absolute was the intuition of a formless identity, a quasi-mystical apprehension of (to use Hegel's caustic phrase) the night in which all cows are black. In Schelling, as in Spinoza, we can see a certain desire for the Infinite, but it is significant that in the case of Schelling that Infinite is without form and void: he would have the Infinite, but it must be an Infinite in which all forms are indistinguishably merged, neither an infinite System nor infinite Form—a true romanticist. (In his later thought Schelling advanced to a theistic position, accompanied by various speculative extravaganzas, but it is not to my point to speak of his later theism.)

If Fichte's emphasis on the Subject and Schelling's emphasis on the Object may be said to stand to one another as respectively thesis and antithesis, it was left to Hegel to attempt the synthesis, and, whatever one may think of the Hegelian system as such, one must admit that he was admirably equipped for the task. This "bourgeois" professor, who acquired a vast store of erudition, patiently collected (even if his information was not always particularly accurate), was yet not overwhelmed by the weight of this intellectual baggage, but, with a truly astonishing power of synthesis, dialectical subtlety and imaginative insight, was able to carry the *tout ensemble* and to order it systematically in a grandiose and comprehensive philosophy. Kierkegaard remarked once that if Hegel had meant his system to be simply an *intellectual tour de force*, he would have been the greatest philosopher who ever lived, but as he meant it seriously he is merely a joke. Whether one agrees or not with Kierkegaard's sarcastic observation, it obviously presupposes that one understands what Hegel meant, and yet that is precisely the difficulty, to understand exactly what Hegel meant by his system. One can, it is true, understand without much trouble Hegel's view of the relation of romantic to classic art, or of reason to faith, or of the State to civil society, but to understand rightly, and to be able to feel sure that one understands rightly, his view of the relation between the world and God, that is not so easy. One can, I think, be certain that Hegel did not accept voluntary creation out of nothing "in time" (that he regarded as a theological *Vorstellung*), but the obscurity of his language renders it very difficult to see what he really believed concerning the world's relation to God. In such points to force an indubitable meaning out of Hegel's words is, as Ferrier observed, rather like trying to distil whisky out of a loaf of bread. In discussing the question of Hegel's theism or pantheism one is, then, hardly entitled to dogmatise, to assert that one's own interpretation is the only possible or reasonable interpretation.

Kant had asserted the partial constitution by the subject of the

object as phenomenon, Fichte went on to assert the total constitution of the object by the subject (in the sense of the Transcendental Ego): Hegel accepted this general idealist position, though he did not accept the one-sided "subjectivity" of Fichte, but agreed with Schelling that Nature enjoys a more objective status than Fichte allowed her. The world, then, in its entirety, including the finite consciousness, is the product of the Cosmic Reason, the Idea, God. Thought cannot be reduced to matter, but we must not, as philosophers, remain in a dualistic position, so that matter must ultimately be reduced to, or be seen as proceeding from thought. Being indeed is primary, but ultimate Being, as Aristotle saw, is Thought, though we cannot be content with Aristotle's position, which leaves Thought, the Idea or self-thinking Thought, without any organic connection with the world save that of unconscious teleological attraction. One must utilise not only the Platonic conception of the Demiurge but also the Christian conception of the production of the world by God, provided that one realises (I speak for Hegel) that the notion of a free and voluntary act of creation on God's part is an instance of theological anthropomorphism or symbolism, admirably adapted for the religious consciousness, but inadmissible from the speculative standpoint of pure reason. The world, then, proceeds from the Absolute, but what is the Absolute? It is not simply Substance, as Spinoza thought, nor is it Schelling's formless identity: it is Reason or Mind, it is Being, but Being in its true nature as Idea. Plato lighted on a real truth, that true being is Idea, but he failed to work out the unity of the Idea or their relation to the world, while he separated the Ideas and Nous, and did not realise the dynamic, self-expressing character of the former. The Universal is indeed the truly real, but the Universal manifests itself in the particular.

Cosmic Reason, then, or the Idea or God manifests itself in the world of particularity, of finitude, imperfectly in Nature, perfectly in Spirit, above all in the universal philosophic activity of the human mind. In this activity the particularity of the individual is transcended, man rethinks the thought of God, apprehends the Divine Essence as what it is, i.e. thought, and God attains "existential" self-consciousness in and through the human spirit. Man is essentially spirit, but he has also his place in Nature, so that in man the synthesis of the Idea and Nature is achieved. The whole historical process in space and time constitutes the self-manifestation of the Absolute, but the Absolute, being Idea, can manifest itself adequately only in what is like itself, in universal thought, in the history of philosophy, which, as a manifestation of the Absolute, transcends in point of adequacy the sensuous manifestation in art and the symbolic representation in dogmatic theology.

What, then, for Hegel is the precise relation of Nature to God? And what is the precise relation of the finite mind to the World-spirit? Was he a pantheist, or was he not? Hegel, it is true, explicitly rejected the charge of pantheism, and we must suppose that he really attached some meaning to this rejection, and was not simply "dancing to the pipe of ministers," as Schopenhauer puts it; but it is no facile task to discover exactly what he did mean. He refused to identify this stone or that tree, i.e. the particular as such, considered in its particularity, with God; but did he mean to imply that the particular, considered precisely as such, is unreal, and that the real is objective Reason, God, alone? Or did Hegel suppose that "God" is simply the noetic structure of the world, the inside of the world, so to speak, which attains self-consciousness and self-reflection in and through the human spirit? In this case the World-spirit would be little more than the universal activity of the human mind, considered as transcending the individual mind, subjective spirit, and the Hegelian system would perhaps be more properly termed an atheistic than a pantheistic system? Or did he maintain that the world is external to God, that God transcends the world ontologically, in which case he would be a theist?

That Hegel meant that God is simply the structural principle of Nature, which first attains the status of Spirit in man, is to me unthinkable. If he really thought this, he would not have been the idealist that he certainly was. Reason or the Idea must be, at least logically, prior to Nature, and Nature must proceed from the Idea. This is clearly taught by the doctrine of the dialectic. Moreover, it is a notorious fact that Hegel declared that the particular cannot be deduced. The critic may think that what Hegel should have said is that, though particulars are in principle deducible, *in se*, the human mind cannot deduce them (and in support of this it may certainly be urged that Hegel stated that philosophy is concerned with the universal and not with particulars), but what he actually said was, not that *he* could not deduce particulars, but that particulars could not be deduced. In other words, Hegel admitted an element of contingency in Nature: he insisted that Nature, precisely because of the element of contingency and imperfection, is an inadequate manifestation of the Absolute, that mindless Nature is but a stage on the road to the adequate manifestation of the Absolute as Spirit. But if Hegel was really no more than an atheist this element of particularity and contingency is left without any explanation, and it is inconceivable that Hegel was content to leave unexplained the presence of particularity as such, even if philosophy cannot deduce any given particular. It may be said that, for Hegel, the universal comprises the particular and that the universal, i.e. the whole system of universals which constitutes the Absolute is self-

explanatory, so that the particular requires no further explanation; but it is obvious that the universal does not comprise the particulars in such a way that it is confined to any given set of particulars (no more than the State is confined to any given set of individual citizens), so that the particulars must flow from the universal, and, if they flow from the universal, the latter is logically prior. The Idea, then, must be prior to the contingent world of particulars, even if it is partially manifested in that world, and in this case Hegel cannot have been an atheist. He may have been a pantheist or a theist, but he was certainly not an atheist.

Now, if Reason or the Idea is logically prior to Nature, and if at the same time creation through a free act of God is ruled out, the world must proceed timelessly from God (in the sense that no first moment of time can, even ideally, be assigned). God, the Idea, essentially tends to self-objectification, self-expression and manifestation: the Absolute, the Universal, reflects itself in the particular and the finite, the One being mirrored in the many. Nature is thus external to God in the sense that particulars do not belong to the Divine Essence considered precisely as such, but Nature is also the self-expression of God, God gone over, as it were, into externality, God in His otherness. God, by His very nature, tends to self-manifestation on the existential level, and the first stage of that manifestation is the Antithesis, mindless Nature, a stage on the road to the adequate manifestation of God in what is like Himself, in the universal thought of the human spirit. The human being, considered precisely as the individual Smith or Jones, with his purely private thoughts and aspirations, is not God (so Hegel denied that he was a pantheist), but the universal and developing thought of man, which transcends the individuals who think it, is the self-manifestation of God, progressively reflecting on the external level His undivided essential self-consciousness.

Admittedly this is obscure, but the Hegelian system must be obscure if it is, as I think it is, neither unambiguous theism not unambiguous pantheism. It is not unambiguous theism since the world proceeds from God by a necessity of God's nature (this is surely the ontological fact corresponding to the logical transition in the dialectical deduction), and this immediately suggests either emanation or a kind of self-diremption of the Absolute within itself. Again, there seems to be a tendency to identify the univeral thought of man, not merely with a self-manifestation of the Absolute on the external level, but with the actual self-consciousness of the Absolute. The Hegelian system, however, is not unambiguously pantheistic, and could hardly be so, since not only does Hegel admit an element of contingency in Nature, but derives Nature from the Cosmic Reason, so that human reason also must be a derivative, even if

the Cosmic Reason works in and through the human reason. The Idea is prior, mindless Nature and the human spirit proceed from the Idea: the universal and rational development of Nature and Spirit are alone truly significant and real, but the element of imperfection in Nature and the particularity in the life of subjective spirit are existential facts, facts which can only be explained if, although God is at the heart of Nature and the human mind, giving them significance, the imperfection of Nature and the finitude of the particular human mind are due to their being an external expression of God or the Idea.

In any case, even if Hegel's system was fully pantheistic, he did not lay himself open to Schopenhauer's charge that pantheism is simply a masked atheism, for God or the Cosmic Reason would be the only Being. He would, however, lay himself open to another charge brought by Schopenhauer, to the effect that in so far as pantheism has a meaning which is not already contained in atheism, it is an absurdity, since it starts with the notion of God, borrowed from theism, and then goes on to depict God as transforming Himself into the world as we know it. And would not Schopenhauer be right? If one starts with the Absolute and then depicts the history of the world and of man as the Golgotha of the Absolute, one thereby tends to cancel out the idea of God with which one started: not only does God become the eternal Romantic, but He becomes also the cosmic Sufferer. Yet in point of fact Hegel does seem to allow a distinction between God and Nature, as I have already indicated, and between God and the finite consciousness. He could not possibly identify God and the finite consciousness *tout court*, since Nature obviously does not proceed from the finite consciousness as such, so that God must at least be *more* than finite consciousnesses taken together. Further, as God or the Idea manifests Himself or itself, not only in and through the finite consciousness but also *to* the finite consciousness, there must be some real distinction between them. Whether the finite consciousness is immortal or not, is another question (Hegel does not appear to have troubled himself much about the matter), but, while the finite consciousness exists, it cannot, as a particular consciousness, be called God: it is in God but it is not God. Hegel's notion thus seems to me to be rather one of panentheism than rigorous pantheism—a hybrid of theism and pantheism, an attempt to have one's cake and eat it at the same time, largely due to the attempt to force theism into the framework of a deductive system. If a philosopher *starts* with God and proceeds to deduce the world, even if only in essence, some form of pantheism is the logical consequence; but the resulting pantheism will bear far more resemblance to theism if he starts with the idea of God as infinite Subject or as Reason than if he

starts with the idea of God as Substance and proceeds to deduce *more geometrico*. It is perhaps significant that some orthodox theists have at times attempted to "baptise" the Hegelian system, whereas I am not aware of any orthodox theists who have seriously attempted to baptise the system of Spinoza, even if (as is surely possible with any great philosopher) they have found stimulus and interest in the content of his philosophy.

WHITEHEAD'S PHILOSOPHY: *THE HIGHER PHASES OF EXPERIENCE*

SYDNEY E. HOOPER, M.A.

In my last article I described fully the important type of entity in Whitehead's philosophy called "propositions," and explained the part they played in conscious experience. We learnt that "consciousness" was a certain kind of emergent quality associated with the late phase of concrescence of some high-grade actual entities. It was pointed out that whenever consciousness was present in experience, this proved to be the subjective form of an integral synthetic feeling composed of (1) a physical feeling and (2) a propositional feeling. This integral feeling was said to be a feeling of contrast between "actuality" and "ideality," between a fact and a possibility. That is to say consciousness is the subjective form of the feeling of a contrast between what actuality *is*, and *might not be*, or what actuality *is not*, and yet *might be*. We can now proceed to deal with a number of higher phases of experience such as "belief," "conscious perception," "judgment," together with experiences termed by Whitehead "physical purposes."[1]

There is a wide variety of feelings whose data are "genuine contrasts." These feelings arise from various degrees of complex integrations of component feelings and they are called in the Organic Philosophy "Comparative Feelings." Two simple types of comparative feelings are, (1) Intellectual Feelings and (2) Physical Purposes. Intellectual feelings arise from the integration of a "propositional feeling" with the "indicative feeling." Physical Purposes arise from the integration of a conceptual feeling with the basic physical feeling from which it is derived, either directly or indirectly by reversion. The integration of feelings involved in physical purposes is a more primitive type than that involved in perceptive propositional feelings. The subjective forms of physical purposes do not involve consciousness unless these feelings become integrated with conscious perceptions and intuitive judgments.

Intellectual Feelings

The important point to grasp concerning intellectual feelings is that they are concerned with experiences of "contrasts." Whenever

[1] *Process and Reality*, pp. 377, et seq. (This is a complicated section of Whitehead's philosophy, and the writer has been able to do little more than give a résumé.)

there is an intellectual feeling, it is found that the datum presented to a subject for prehension, is the generic contrast between a nexus of actual entities and a proposition whose logical subjects are members of the nexus. The unity of every generic contrast is effected through a "two-way" functioning of certain entities which are components in *each* of the contrasted factors. This is how the unity is achieved. The subject entertaining the two feelings effects an integration of them in such a way that each of the actual entities in question performs *one* rôle of a two-way functioning. The two-way functioning is unified as "contrast." That the entities which are components of each of the contrasted factors should play but one rôle in the subject entertaining the two feelings, is rendered necessary by the category of Objective Identity, which prescribes that each element has only one self-consistent function, however complex. That is to say, there can be no *duplication* of any element in the objective datum of the "satisfaction" of an actual entity, so far as concerns the function of that element in the "satisfaction." Thus "what in *origination* is describable as a pair of distinct ways of functioning of each actual entity in the factors of the generic contrast respectively, is realized in the prehending subject as one rôle with a two-way aspect. This two-way aspect is unified as 'contrast.' "[1]

It is interesting to notice what is involved in an intellectual feeling of "contrast." It is a feeling of contrast between matter of fact and potentiality. On the one side, there is the presentation of what the actual entity in question contributes to the objectified nexus in the physical feeling: on the other side, there is the presentation of the mere potentiality of the same actual entity in the predicative pattern of the proposition, in the eventuality of the proposition's realization. The contrast is called the "affirmation-negation" contrast; that is to say, "the contrast between the affirmation of objectified fact in the physical feeling, and the mere potentiality, which is the negation of such affirmation in the propositional feeling." To put it in another way, in an intellectual feeling, there is a feeling of contrast between "in fact" and "might be" in respect of particular events or occurrences in *this* actual world. Now all feelings, without exception, have "subjective forms," and the subjective form of the intellectual feeling of "contrast" is consciousness. It is to be noted that in conformity to the category of Subjective Harmony, when a subjective form in an actual entity gives rise to consciousness, this consciousness irradiates, in some measure, *all* the feelings attaining concrescent unity in the "satisfaction." This occurs by reason of the fact that there is a pre-established harmony in the process of concrescence of any one subject. We may ask what is the function of these intellectual feelings:

[1] *P. & R.*, p. 377.

what do they do? Whitehead gives us an interesting answer to this question. He says that an intellectual feeling, produced in a late stage of the concrescence of an actual entity, analyses its earlier phases. That is to say, by means of the intellectual feelings of an actual entity there is a *self-analysis* of the entity in respect of the earlier stages of its incompletion.[1]

(*a*) *"Belief"*

Consider the belief shared by so many men of all nations such as that of "the immortality of the soul." This is one type of intellectual feeling. How are we to understand the experience called "belief" in the light of the general description just given of the constitution of intellectual feelings? This is how Whitehead answers the question. "A feeling is termed a 'belief,' or is said to include an element of 'belief,' when its datum is a proposition, and its subjective form includes, as the defining element in its emotional pattern, a certain form, or eternal object, associated with some gradation of intensity. This eternal object is 'belief character.' "[2] In such an experience we have an illustration of the necessary part played by the hybrid entity (composed of "fact" and "potentiality"), termed a "proposition," described at length in an earlier article. The datum of a belief feeling must be a proposition—a possibility—"a tale that perhaps might be told about particular actualities," a lure for feeling, something whose importance for the subject is that it should be "interesting," and that engenders imaginative freedom. A propositional feeling is, therefore, the primary requisite for that level of experience we call "belief." But the specific "belief character" is due to the *subjective form* of the propositional feeling. To enjoy this character, the subjective form must include as *the defining element in its emotional pattern* "a certain eternal object bearing some degree of intensity." The strength of the belief will vary according to the degree of intensity associated with this eternal object. Of course, in this description of a belief, we are not referring to the "objective probability" of a proposition expressing its relation to certain other propositions. That is quite another matter. The comparative strength of a belief is a "psychological" fact, which objective evidence may either justify or show to be unwarranted.

(*b*) *"Conscious Perception"*

"Conscious Perception" is defined by Whitehead as "the feeling of what is relevant to immediate fact in contrast with its potential irrelevance."[3] Let us see what is involved in such an experience. In the first place it is to be understood that there must be one basic

[1] *P. & R.*, p. 77. [2] *Ibid.*, p. 378. [3] *Ibid.*, p. 379.

physical feeling derived from a nexus of actual entities. From this original feeling entertained by a "subject," there arises, in the second place, a propositional feeling, where the same nexus of actual entities are transformed into "logical subjects" with a potential predicate, in accordance with the explanation of the genesis of a proposition given in an earlier article. The propositional feeling is of the kind called "perceptive," that is to say, the "indicative" feeling from which the logical subjects are derived, and the "physical recognition" from which the predicative pattern of the proposition is derived, are *one* and the *same* feeling. We are now in a position to understand the nature of a conscious perception: "*A conscious perception is the comparative feeling arising from the integration of the 'perceptive' propositional feeling with the original physical feeling.*"[1] Again we have a comparative feeling of "contrast."

It will be recalled that "perceptive" propositional feelings are either "authentic," or "unauthentic." When the predicative pattern of a proposition is derived straight from the physical feeling called "physical recognition" and there is no reversion, the perceptive feeling is termed "authentic." When, however, the predicative pattern has arisen in the prehending subject by reversion, so that the predicate is distorted from the truth by the peculiar subjectivity of the subject, the perceptive feeling is termed "unauthentic." It will also be recalled that "authentic" perceptive feelings may be either "direct" or "indirect." They are "direct" when the primary physical feeling involves no reversion at any stage, so that the predicate of the proposition is the same eternal object which constitutes the form of definiteness of the nexus in question. They are "indirect" when reversion is involved bringing into the picture secondary eternal objects, and the conceptual feelings of those secondary eternal objects, have been "transmuted" into physical feeling.

It will be readily understood that a "direct" perceptive propositional feeling feels its logical subjects as potentially informed with a predicate expressing an *intrinsic* character of the nexus presented as the initial datum of the physical feeling. We should not expect this to be the case in respect of an "indirect" perceptive propositional feeling, because reversion is here involved. But even an "indirect" perceptive propositional feeling may feel its logical subjects as potentially informed with a predicate expressing an intrinsic character of the nexus, subject to a certain qualification. What is this qualification? It is that "the secondary conceptual feelings *entertained in the nexus* by reason of reversion, have been *transmuted* so as to be felt by the "subject" of the conscious perception as if they had been *physical* facts in the nexus."[2] However, generally

[1] *P. & R.*, p. 379.

[2] *Ibid.*, p. 380.

speaking, a transmuted physical feeling only arises as the outcome of a complex process of incompatibilities and inhibitions, and "apart from exceptional circumstances, only to be found in a few high-grade organisms, transmutation only accounts for physical feelings of negligible intensity." But, says Whitehead, since transmutation of conceptual feeling into a characteristic of physical feeling does occur in high-grade organisms, the possibility of this having happened in any given conscious perception, cannot be overlooked when investigating the experience. If it is possible even for "authentic" physical feelings to distort the character of the nexus felt by the process of transmuting conceptual feeling into felt fact, authentic perceptive feelings can introduce error into thought, just as transmuted physical feelings can introduce novelty into the physical world, whether fortunate or disastrous. The important truth to grasp, is that both error in conscious perception and novelty in the physical world, have their origin in conceptual functioning according to the category of reversion.

But let us ignore the cases where transmuted perceptive feelings have importance and consider an instance of pure conscious perception. Here the prehending subject in the process of the concrescence of an actual entity, has one phase in which it is concerned with two factors, (1) the original physical feeling and (2) the derived perceptive propositional feeling. In respect of (1), the nexus, physically felt, is objectified through its own proper physical bonds and "as there are no incompatibilities between fact and reverted concept to produce attenuation, the objective datum is felt with its own proper intensities, and is transmitted to the subjective form of the physical feeling."[1] In respect of (2) the datum of this feeling is the proposition with the actual entities of the nexus as its logical subjects, and with the predicate also derived from the nexus. Consequently "the whole origination of this perceptive feeling has its sole basis in the physical feeling, which plays the part both of 'indicative feeling' and of 'physical recognition.' "[2]

Notice what results through the integration of these two feelings into one integral feeling. It yields a feeling of "contrast" of the nexus as *fact* confronted with the potentiality "derived from itself, limited to itself, and exemplified in itself." This contrast is the datum of the integral feeling, whose subjective form expresses itself in vivid immediate consciousness of what the nexus really *is* in the way of potentiality realized. Such an experience is conscious perception.

Are there any tests for the correctness of conscious perception? Whitehead mentions two, but remarks that neither is infallible. The first is Hume's test of "force and vivacity," and the second the fact

[1] *P. & R.*, p. 380. [2] *Ibid.*, p. 380.

that consciousness illuminates the various feelings involved in the process. In regard to the latter, Whitehead says, "Thus the fact, that the physical feeling has not transmuted concept into physical bond, lies open for inspection."[1] The doubtful element in conscious perception is not the immediate perception of the nexus of actual entities, which is a piece of the actual world, but the question whether the "predicate" attributed to the nexus is an intrinsic form of the nexus or not.

Finally, a word concerning an "unauthentic" perceptive feeling. An unauthentic perceptive feeling arises when, in addition to the conceptual feeling originating from its own basic physical feeling, there is an advance to a secondary stage, an advance which produces a reverted conceptual feeling (i.e. a feeling of a novel eternal object) to perform the rôle of predicative feeling. When this happens, as Whitehead points out, "the subject by its own process of reversion, attributes to the logical subjects a predicate which has no immediate relevance to the nexus." Thus, the comparative feeling which integrates the basic physical feeling with the unauthentic perceptive propositional feeling, "has for its datum the generic contrast of (1) the nexus with (2) a proposition, whose logical subjects comprise the actualities in the nexus, and whose *predicate* partly agrees with the complex pattern exemplified in the nexus and partly disagrees with it. This case is really the conscious perception of a proposition *imaginatively* arrived at which concerns the nexus and disagrees with the facts."[2] Such a case is really analagous to an "intuitive judgment" (to be discussed later), in which there is consciousness of a proposition as erroneous.

(c) *General Remarks on Judgment* [3]

The Organic Philosophy teaches that each actual entity is a throb of experience expressing the actual world from its unique perspective. Both the problem of efficient causation and that of knowledge receive a common explanation from the constitution of actual occasions.

The theory of judgment in this philosophy describes judgment as "the subjective form of the integral prehension of the conformity, or non-conformity, of propositions and objectified nexus."[4] In this integral prehension there is a synthesis of two prehensions, one physical and the other mental. The physical prehension is the prehension of a nexus of objectified actual entities: the mental prehension is the prehension of a proposition. This synthesis results in an intellectual prehension, whose subjective form expresses itself in "judgment."

[1] *P. & R.*, p. 381.
[2] *Ibid.*, p. 382.
[3] *Ibid.*, pp. 260–94.
[4] *Ibid.*, p. 269.

In the Organic Philosophy a distinction is made between a judgment and a proposition. A proposition can be *true* or *false*; whilst a judgment can be *correct*, or *incorrect*, or *suspended*. It is maintained by Whitehead that a judgment "is a feeling in the 'process' of the judging subject, and it is 'correct' or 'incorrect' in regard to that subject."[1] Further, a judgment "enters, as a value, into the satisfaction of that subject, and it can only be criticized by the judgments of actual entities in the future."[2] Finally, "a judgment concerns the universe in process of prehension by the judging subject."[3] It affirms the physical objectification for the judging subject of a set of actual entities by the ingression of certain eternal objects "so that there is one objectified nexus of those actual entities judged to be really interconnected and qualified by those eternal objects."[4] Consequently the judgment affirms correctly or incorrectly, a real fact in the constitution of the judging subject. *The judgment, then, is a feeling in the innermost nature of the subject, and the judgment is made about itself.* The actual entities with which the judgment is concerned embrace (1) the "logical subjects," and (2) the selected eternal objects which contribute the qualities and relations which are affirmed of the logical subjects.

Whitehead especially draws our attention to the point that "affirmation" about the *logical subjects* is used in a sense *derivative* from the meaning of "affirmation" about the judging subject. He reminds us that if we identify the two senses, we shall be led into error. This is how he brings out the distinction. When the affirmation is about the "logical subjects," there is abstraction from the judging subject. Here "the subjectivist principle has been transcended, and the judgment has shifted its emphasis from the objectified nexus to the truth-value of the proposition in question." But when the affirmation is about the "judging subject," the judgment affirms a real fact in the constitution of the judging subject.

Since judgment concerns the subjective form of the impure feeling emerging from the integration of simpler feelings, it transpires that judgments are divisible into two sorts, namely, (i) intuitive judgments, and (ii) derivative judgments. In an intuitive judgment, "the integration of the physical datum with the proposition, elicits into feeling the full complex detail of the proposition in its comparison of identity, or diversity, in regard to the complex detail of the physical datum. The intuitive judgment is the consciousness of this complex detailed comparison involving identity and diversity. Such a judgment is in its nature correct: for it is the consciousness of *what is*."[6]

[1] *P. & R.*, p. 270. [2] *Ibid.*, p. 270. [3] *Ibid.*, p. 270.
[4] *Ibid.*, p. 271. [5] *Ibid.*, pp. 270–71. [6] *Ibid.*, p. 271.

In a derivative judgment, "the integration of the physical datum with the proposition elicits into feeling the full complex detail of the proposition, *but does not elicit into feeling the full comparison of this detail with the complex detail of the physical fact.* There is some comparison involving the remainder of the detail. But the subjective form embraces the *totality* of the proposition, instead of assuming a complex pattern which "discriminates" between the compared and the uncompared components. In derivative judgments there can be error."[1] Whitehead goes on to say that most judgments are derivative, and that such judgments illustrate the doctrine that the subjective form of a feeling is sensitive to, and is affected by, the totality of feelings in an actual occasion. But in an intuitive judgment "the subjective form of assent or dissent has been restrained, so as to derive its character solely from the contrasts in the datum."[2] It is the function of Logic to engage in the analysis of the relationships between propositions, thereby ensuring that derivative judgments do not introduce errors, other than those already attaching to the judgments on the premises.

In contradistinction to the judgment itself, the proposition emerges in the analysis of a judgment. Whitehead says: "it is the *datum* of the judgment in abstraction from the judging subject."[3] On the one hand a judgment is a synthetic feeling, embracing two subordinate feelings in a unity. Of these subordinate feelings one is propositional, so that the proposition is what is felt. But since there is also a physical feeling integrated in the intellectual feeling which is judgment, the proposition is only *part* of the datum felt by the subject.[4] "The judgment is a decision of feeling, the proposition is what is felt, but it is only part of the datum felt."[5]

(*d*) *Intuitive Judgments*

The term "Judgment," as employed by Whitehead, is applied to three species among the comparative feelings. In such an experience, there is the feeling of generic "contrast" between an objectified nexus and a proposition whose logical subjects constitute the nexus. The judgment can assume three forms, (i) the "yes-form," (ii) the "no-form," (iii) the "suspense-form."

In all three species of contrast, because of the objective identity

[1] *P. & R.*, p. 272.
[2] *Ibid.*, p. 272.
[3] *Ibid.*, p. 272.
[4] *Ibid.*, p. 273.
[5] In explaining the difference between a proposition and a judgment, Whitehead says (*ibid.*, p. 279), "a proposition is an example of what Locke calls an "idea determined to particular existences." It is the potentiality of such an idea; the realized idea, admitted to decision in a given subject, is the judgment, which may be a true or false idea about the particular things."

of the actual entities on both sides of the contrast, the datum presented to the judging subject is felt as a unity. In the "yes-form" of the judgment, there is an additional ground for unity in consequence of the *identity* of the form or pattern of the objectified nexus with the predicate of the proposition. In the "no-form" of judgment, this latter ground of unity does not exist. There is, therefore, the experience of contrast expressing *incompatible diversity*. In the "suspense-form" of judgment, the predicate is neither identical, nor incompatible with the pattern of the objectified nexus. That is to say, the nexus, in its own "formal" existence, may, or may not, exemplify both the pattern and the predicate. This uncertainty, characteristic of a suspended judgment, is therefore the experience of a contrast between pattern and predicate without incompatibility.

In an earlier article concerning "propositions" we explained that certain feelings were called "indicative" feelings, and others were called "imaginative" feelings. It will be recalled that an "indicative" feeling is "a physical feeling whose objective datum includes the requisite logical subjects," and that an "imaginative" feeling arises from the *difference* between the "indicative feeling" (from which the logical subjects are derived), and the "physical recognition" (from which the predicative pattern of the proposition is derived). When the "indicative feeling" and the "physical recognition" are different feelings, the derived proposition is called an "imaginative" feeling. It is so named because, in such a case, the proposition predicates of its logical subjects a character without any guarantee of close relevance to the logical subjects. Now the intuitive judgment is the comparative feeling whose datum is constituted by the generic contrast between the nexus involved in the "indicative" feeling, and the proposition involved in the "imaginative" feeling. An example of an affirmative intuitive judgment might quite well be—"intuiting this stone as grey," and one of a negative intuitive judgment—"intuiting this stone as not grey."

In the generic contrast of "indicative feeling" and "imaginative feeling" which is the datum of an intuitive judgment, something interesting is to be noted, which is this. Each actual entity has its contrast of "two-way" functioning. On the one hand, it performs a rôle in the definite pattern of the nexus; on the other hand, it performs a rôle in the potential pattern of the proposition. It may also happen that in addition to the contrast of exemplification and potentiality just mentioned, the pattern of the nexus and the pattern of the propositional predicate are identical in every respect. When this is the case, it is clear that a single complex eternal object is functioning in a two-way manner, namely as exemplified and as potential. Now in such an instance it can be said that the proposition is "true." It is true because it "coheres" with the nexus. "Thus,"

says Whitehead, "truth is the absence of incompatibility or of any 'material contrast' in the patterns of the nexus and of the proposition in their generic contrast." If a contrast arises in any respect other than that between exemplification and potentiality, the proposition is not felt as true.

It will be noted that the intuitive judgment in its subjective form conforms to what there is to feel in the datum. It is, therefore, impossible for error to arise from the subjective form of a judgment feeling. Error can, however, arise in another way. One of the factors in the integral judgment feeling, is the "indicative feeling" and it is possible that in the origination of this latter feeling there may have been reversion. When this has been the case error arises through operations taking place below the level of consciousness: there has been subjective distortion.

The question may be asked—how do conscious perceptions differ from intuitive judgments? Generally speaking, a conscious perception is the outcome of an originative process more closely restricted to fact than is the generative process of an intuitive judgment. But the distinction between the two types of comparative feeling is not absolute. For instance, as we have seen earlier, there can be conscious perception when conceptual feelings in the nexus are transmuted into physical feelings. Moreover, it sometimes happens that an unauthentic propositional feeling prehending a proposition with a reverted predicate, is a constituent of a conscious perception. In such cases as these, conscious perceptions assume the character of intuitive judgments. On the other hand, the difference between the physical feeling in the intuitive judgment and that in the conscious perception, may be so insignificant (the nexus which is the datum for one being practically identical with the nexus which is the datum for the other) that intuitive judgments may in certain circumstances approximate to conscious perceptions.

The experiences of a positive intuitive judgment and a conscious perception are very like each other. Indeed, Whitehead says that an affirmative intuitive judgment is really a sophisticated case of a conscious perception. He points out that in the last resort the difference between the two has its origin in the fact that conscious perception involves a "perceptive" feeling, and intuitive judgment involves an "imaginative" feeling. In a perceptive feeling only one set of actual entities play a part, and these actual entities are the logical subjects of the proposition. But in an imaginative feeling, two sets of actual entities are involved, as was explained earlier, namely, those related to (1) the indicative feeling and (2) those related to the "physical recognition." It is true that one of these sets is eliminated in the process of origination, leaving only one set to provide the logical subjects of the proposition; but, nevertheless,

the very fact that in an imaginative feeling there is a phase of elimination, affects its emotional pattern. In short, the difference between a conscious perception and an intuitive judgment, is to be explained by the difference in the emotional pattern associated with the perceptive feeling, and that associated with the imaginative feeling. "In the case of the perceptive feeling, the emotional pattern affects the close connection of the predicate with the logical subjects, throughout the process of origination. In the case of the imaginative feeling, this emotional feeling affects the initial disconnection of the predicate from the logical subjects."[1] This initial disconnection is, of course, due to the fact that the predicate in an imaginative feeling arises from the "physical recognition." Whitehead invites us to pay special attention to the analysis just given, since it "illustrates the truth that in the integration of feelings, components which are eliminated from the matter of the integral feeling, may nevertheless leave their mark on its emotional pattern."[2]

In contrasting positive with negative intuitive judgments, it may be well to repeat what was said earlier, when it was pointed out that the triumph of consciousness is associated with the negative type. In the negative intuitive judgment there is conscious feeling of what "might be," and is not. The feeling is one concerning the definite negative prehensions enjoyed by the subject. It is consequently the feeling of absence produced by the exclusiveness of what is really present. Thus, says Whitehead, "the explicitness of negation, which is the peculiar characteristic of consciousness, is here at its maximum."[3] It is to be noted that the two cases of the affirmative intuitive judgment, and the negative intuitive judgment are comparatively rare; and that these two forms of judgment together with conscious perception, constitute what Locke called "knowledge."

It is now time to say something about the "suspended" form of judgment. Whitehead defines the suspended judgment in this way. "The suspended judgment consists of the integration of the 'imaginative feeling' with the 'indicative feeling' in the case where the imagined predicate fails to find identification with the objectifying predicate, or with any part of it; but does find *compatible contrast* with it."[4] What kind of feeling does such a state of affairs produce? The answer is that it produces a feeling of contrast between what the logical subjects ostensibly *are*, and what the same subjects, in addition, *may be*. Whitehead remarks that the suspended judgment is really our consciousness of the limitations involved in objectification. What is the function of the suspended judgment? Apparently it is to stimulate discovery: "if in the comparison of an imaginative feeling with fact, we merely know what *is*, and what *is not*, then we should have no basis for discovering the work of objectification

[1] *P. & R.*, p. 386. [2] *Ibid.*, p. 387. [3] *Ibid.*, p. 387. [4] *Ibid.*, p. 388.

in effecting *omissions* from the formal constitution of things. It is this additional knowledge of the compatibility of what we imagine with what we physically feel, that gives this information."[1] It follows that suspended judgments are very important in the growth of knowledge. Progress in scientific theory, and even success in accurate observation, depends on the use of suspended judgments. These tell us what *may* be additional information respecting the formal constitution of the logical subjects in question, information which is neither included nor excluded by direct conscious perception. A suspended judgment provokes attention to what is certainly compatible with an observation, even though it is not at the moment discerned; and because it does this, it is an essential scientific weapon.

One final word concerning the intuitive judgment. Such a judgment may have different emotional patterns, according as it is dominated by concern for truth, or manifests indifference to truth or falsehood. When it is dominated by indifference to truth, there is "conscious imagination." In such a case an imagined predicate is imputed to the world with the attitude of "be it true or false." On the other hand, when an intuitive judgment is dominated by a concern for truth, the emotional attitude is very different. What is the explanation of the difference? These are the words of Whitehead on the topic. "The indifference to truth is otherwise to be expressed as readiness to eliminate the true objectifying pattern exemplified in the objectified datum of the physical feeling in question; while the attention to truth is merely the refusal to eliminate this pattern."[2] Now these emotional differences in the two kinds of intuitive judgment are not dictated by any diversity in the data of the two feelings, for the datum is the same in both types of feeling. The explanation of the differences in the emotional pattern of intuitive judgments must, therefore, be sought elsewhere. The truth is that the emotional pattern in the subjective form of any given feeling, arises from the "aim" dominating the subject in the process of concrescence. Thus, the emotional pattern turns out to be the peculiar way in which the subject of the concrescence asserts itself. "This explanation," says Whitehead, "is merely an application of the doctrine that a feeling appropriates elements of the universe, which, in themselves, are other than the subject; and absorbs these elements into the real internal constitution of its subject by synthesizing them into the unity of an emotional pattern expressive of its own subjectivity."[3] It may be added that the dependence of the emotional pattern of a feeling on the *other* feelings of the same subject, derived from the prehension of its world, illustrates the doctrine of the "mutual sensitivity" of feelings which is cardinal in

[1] *P. & R.*, p. 388. [2] *Ibid.*, p. 391. [3] *Ibid.*, p. 391.

the Organic Philosophy. From this discussion it is clear that an intuitive judgment can be a belief, or a disbelief, or express a state of suspended decision.

Whitehead, however, insists that the main function of intellectual feelings is neither belief, nor disbelief, nor even suspended judgment. Their main function is "to heighten the emotional intensity accompanying the valuations in the conceptual feelings involved, and in the physical purposes, which are more primitive than any intellectual feelings."[1] The primary function of intellectual feelings is to effect a certain concentration of attention involving increase of importance. By means of the concentration of attention, there emerges the criticism of "physical purposes," and this criticism is the intellectual judgment of truth or falsehood. But it must never be forgotten that physical purposes are more primitive than intellectual feelings, and are at work before the latter arrive on the scene. "Consciousness follows, and does not precede, the entry of the conceptual prehension of the relevant universals."[2] That is to say, all actual entities have a mental pole as well as a physical pole; but consciousness is a late arrival on the cosmic scene and, considering the vastness of the universe, is also rare.

Physical Purposes

It will help us to understand the nature and function of "physical purposes" in the scheme of existence, if it is realized at the start that the aim dominating the concrescence of actual entities is to secure as much intensity of experience as is possible in the circumstances. In other words, actual entities aim at an experience which can be fittingly called "aesthetic."

"Physical purposes" are also a type of comparative feelings, but it is a type more primitive than intellectual feelings. In the case of intellectual feelings there is a measure of "indetermination" in respect of the ingression of eternal objects, and this indetermination is well in the foreground. In physical purposes this indetermination of eternal objects is relegated to the background. Moreover, whilst in intellectual feelings, the nexus of actual entities which provide the physical feeling, is reduced by a process of abstraction to a set of bare "relata," in physical purposes the nexus, as a datum, remains what it is in its natural state, exemplifying certain eternal objects which constitute its peculiar definiteness.

A physical purpose may be defined as a comparative feeling of contrast between a physical feeling and an eternal object. The datum presented for feeling is the generic contrast between the nexus felt physically, and the eternal object "valued" conceptually. The

[1] *P. & R.*, p. 385. [2] *Ibid.*, p. 386.

physical feeling is the experience of feeling a real fact; the conceptual feeling is the valuing of an abstract possibility. The synthetic feeling in which both these different feelings are united in one integral feeling of contrast, is a physical purpose. There is a simple type of physical purpose and a more complex type. We will first deal with the simple type.

It has been said that in a physical purpose, the eternal object is exemplified as the "pattern" of the nexus. The attitude of the subject at this level of experience is that of "valuing" this eternal object. It is one of estimating its worth in respect of the aim of the subject in the concrescent process. This conceptual valuation affects the *physical* feeling of the nexus exemplifying the eternal object in question. Consequently the physical feeling itself is endowed with a valuation, and, because of this, the transcendent creativity functioning in the concrescence receives a certain character. If the valuation is favourable-"adversion," the creativity absorbs the favourable valuation; if the valuation is unfavourable-"aversion," the creativity absorbs the contrary valuation.

It is important to note the result of the valuation of "adversion" or of its opposite "aversion" upon the creative process. Whitehead tells us that the endowment of the creativity with adversion, secures the *reproduction* of the physical feeling as one element in "the objectification of the subject beyond itself." Consequently a physical feeling with a favourable adverted valuation tends to possess some power of persistence into the future. This power of persistence has important results, since it enables a given feeling to be felt and re-enacted down a route of occasions constituting an enduring object. Hence the existence of enduring objects is intimately bound up with the positive valuation of "adversion." On the other hand, when there is "aversion," the opposite result ensues. In this case the transcendent creativity assumes such a character that it discourages, inhibits, or attenuates the objectification of the subject in the garment of *that* physical feeling. "Thus aversion tends to eliminate one possibility by which the subject may itself be objectified in the future." Briefly, it may be said that adversion promotes stability, whilst aversion permits change "but only in the direction of triviality."

So far we have described valuation as it affects the physical feeling in its first phase of mere responsive re-enaction. But the valuation does not end here. In the second phase of origination, the physical feeling is *integrated* with the conceptual feeling arising from the eternal object which is its form of definiteness. This second phase is also enriched by a valuation. It will be remembered that the character of a concrescence is "dipolar": it has a physical and a mental pole. The physical pole of an actual entity represents

objective experience derived from the actual world; the mental pole represents experience derived from the conceptual valuation of the eternal object exemplified as the "form" of the nexus prehended by the subject. The mental pole of an actual entity plays a very important part in the concrescence. In the first place, mental operations are responsible for the subjective aim of the subject, an aim which dominates the whole concrescent process towards a definite goal. Consequently the "efficient" causation at work in the concrescence, derived straight from the objectified actual world, is completed by the invasion of "final" causation embodied in the subjective aim. In the second place, mental operations perform the task of "valuation," and it is the "valuation" of physical purposes that determines the relative efficiency of various feelings involved in a concrescence, in their rôle of objectifying the subject beyond itself in the creative advance. In this latter function, mental operations permit the subject to act as an "efficient" as well as a "final" cause. Hence, as Whitehead says, "the mental pole is the link whereby the creativity is endowed with the double character of final causation and efficient causation."

The more complex type of physical purpose originates as the result of reversion in the mental pole. Whitehead tells us that this more complex type of physical purpose is responsible for the fact that vibration and rhythm play a dominating rôle in the physical world. Reversions are the conceptual feelings which arise by reason of the lure of contrast.

Let us realize quite clearly that the subjective aim of a process of concrescence, is intensity of feeling. Now intensity of feeling is the result of the ingression of an eternal object into the process from the realm of possibility. This intensity can be heightened when that particular eternal object is realized as one element in a *contrast* between it and certain other eternal objects. Intensity of feeling may be further increased either when two or more contrasts conspire to form a higher contrast, or when they conflict and exhibit themselves as incompatible for joint ingression. Considering the concrescent process as whole, we find it has a double aim. It aims both at the immediate present and the *relevant* future. This double aim is not contradictory, since "determination of the relevant future, and the 'anticipatory' feeling respecting provision for its grade of intensity, are elements affecting the immediate complex of feeling." On the question of the relation of the relevant future to the present, Whitehead makes the illuminating comment that the greater part of morality has to do with determination of relevance in the future. In brief, the future cannot be isolated from the present: "The relevant future consists of those elements in the anticipated future which are felt with effective intensity by the present subject by

reason of the real potentiality for them to be derived from itself."

How is this urge for intensity of feeling which is the aim of the process of concrescence to be understood? In this way. It is to be interpreted as an urge towards the realization of the greatest number of eternal objects, subject to the condition that they must be felt only under the restraining regulation of contrast. What is sought is a rich experience arising out of a "balanced complexity" of contrasts. The term "balance" as used by Whitehead in this connection, means that no realized eternal object shall eliminate or thwart potential contrasts between other eternal objects, since such elimination or thwarting have the effect of weakening intensities of feeling. The subjective aim of the concrescent process is to select from the given materials in such a manner that the result will issue in the realization of "contrasts of contrasts of contrasts," yielding a maximum of intense experience. The immediate present subject will always be exercising its function of valuation with this end in view. Now one element in the immediate feelings of the concrescent subject will consist of the anticipatory feelings of the transcendent future as they bear upon immediate fact. Whitehead informs us that this concern for the future is "the feeling of the objective immortality inherent in the nature of actuality," and that such anticipatory feelings "involve realization of the relevance of eternal objects as decided in the primordial nature of God."[1] (It will be remembered that in the Organic Philosophy, God is the principle of limitation, the principle whereby the realm of eternal objects are envisaged and valued, in respect of their relevance for actualization in the temporal process.) It is to be understood that when these anticipatory feelings in the higher organisms rise to important intensities, they are really effective feelings of certain more remote possibilities. Since they are feelings of possibilities, they are of course "conceptual" feelings, and they arise in accordance with one of the important categories of the Organic Philosophy, namely the "Category of Reversion."[2]

"Reverted" conceptual feelings play a significant rôle in the production of experience that is both complex and intense. This is what happens. When a reverted conceptual feeling acquires a relatively high intensity of positive valuation in its subjective form, the resulting integration of physical feeling, primary conceptual feeling, and secondary conceptual feeling, produces a decidedly

[1] *P. & R.*, p. 393.

[2] According to this category: "There is secondary origination of conceptual feelings with data which are partially identical with, and partially diverse from, the eternal objects forming the data in the first phase of the mental pole. The diversity is a relevant diversity determined by the subjective aim."

more complex physical purpose than in the simple form of physical purpose, whose reverted conceptual feeling is either absent or negligible. In the more complex form of physical purpose "there is the heightening of the scale of subjective intensity by the introduction of *conceptual contrast*"; and this heightened intensity of subjective feeling is concentrated upon the reverted feeling as the novel factor responsible for introducing the contrast. It transpires that a physical purpose of this type provides the creativity with a highly complex character. Many of the important categories of the Organic Philosophy are involved in such a purpose. It is governed "(i) by the category of conceptual reversion in virtue of which the secondary conceptual feeling arises, (ii) by the category of transmutation in virtue of which conceptual feeling can be transmuted as physical feeling, (iii) by the category of subjective harmony, in virtue of which the subjective forms of the two subjective feelings are adjusted to procure the subjective aim, and (iv) by the category of subjective intensity, in virtue of which the aim is determined by the attainment of balanced intensity of feelings integrated in virtue of near-identity, and contrasted in virtue of reversions."[1]

Physical Purposes and Enduring Objects

So much for the "genesis" of the more complex physical purposes and their contribution to the character of the creativity. The reader is now invited to observe their effect upon the constitution of an "enduring object," an effect which is not only important but fundamental. In an earlier article it was explained that an enduring object is constituted by a succession of occasions permeated with a special kind of order and enjoying a continuous inheritance of "form"—the defining characteristic—along the whole route. Now when the successive occasions, which constitute the life history of an enduring object, participate in an inheritance governed by a complex physical purpose, something significant happens. The "reverted" conceptual feeling of one occasion is transmitted into the next occasion as *physical* feeling, and "the 'pattern' of the original physical feeling now reappears as the datum in reverted conceptual feeling."[2] The effect of this procedure is important for an enduring object. Along the whole route of occasions constituting its life history, there is a *chain of contrasts*, so that in each occasion of its existence there is experienced a vivid contrast of the physical feeling with its primary valuation, as one factor, and the reverted conceptual feeling, as the other factor. This experience of contrast between what is inherited, and something which is "novel" derived from the reverted feeling, enhances the intensity of feeling of an

[1] *P. & R.*, p. 394.

[2] *Ibid.*, p. 395.

enduring object; it also gains a rich experience from the inheritance of a stable rhythmic character throughout its life history. Whitehead tells us it is because an enduring object has the "weight of repetition," "intensity of contrast," and the "balance" between the two factors of contrast, that there is the association of endurance with rhythm and physical vibration. Rhythm and physical vibration arise because the subjective aim of the concrescent process has both "width" and "intensity." If it be asked how we are to understand these terms, we are told that in the last resort the experience of width and intensity in some form of harmonious contrast, can be regarded as an "aesthetic" experience. "All aesthetic experience is feeling arising out of the realization of contrast under identity."[1]

Novelty.

The interesting lesson to be learnt from the study of physical purposes in general and especially from the more complex type, is this. Novelty in existence is due to the ingression of eternal objects into the creative process, either singly or plurally, in the form of contrasts. That is to say, new forms of existence enter into positive realization, first as conceptual experience, and are subsequently transmuted into physical experience. Conceptual feeling belongs to the mental pole of an actual entity, and the essence of conceptual feeling is "valuation." Thus it is mental operations that decide what novelties are to be admitted into the creative process. By its valuation of possibilities either favourably ("adversion") or unfavourably ("aversion") the mental pole of each actual entity determines, in appropriate measure, the character of the creative advance.

Between physical purposes and the higher "conscious" purposes introduced by the intellectual feelings, there lie the propositional feelings, *which have not acquired consciousness in their subjective forms by entering into an alliance with certain intellectual feelings.* Whitehead informs us that "such propositional feelings mark a stage of existence intermediate between the purely physical stage and the stage of conscious intellectual operations."[2] As emphasized earlier, the function of propositions is not primarily to evoke belief or disbelief, but to act as a "lure for feeling." In performing this function, they provide feelings with a definiteness of enjoyment and purpose beyond that which is possible in physical purposes. In physical purposes there is merely the "blank" evaluation of physical feeling. That is to say, "there is merely the determination of the comparative creative efficacies of the component feelings of actual entities."[3] On the other hand, in a propositional feeling something more striking occurs. There is a "hold-up," or "arrest" of the

[1] *P. & R.*, p. 396. [2] *Ibid.*, p. 396. [3] *Ibid.*, p. 396.

valuation of the *predicative pattern* in its relevance to logical subjects, which are also felt as definite physical feeling of a set of objectified actual entities. This arrest of emotional pattern has the effect of linking "sheer fact" with "potentiality," and by so doing endows the fact with relevance for the future. We can put it in another way by saying that the particular possibility for the transcendent creativity "has been picked out, held up, and clothed with emotion." It is interesting to observe that Whitehead regards propositional feelings which have not become associated with intellectual feelings, as equivalent to Bergson's pure and instinctive intuition.

It would appear from the account given of the origin of consciousness and the higher phases of experience, that three levels stand out with more or less distinctness, viz.: (i) the stage of pure physical purpose, (ii) the stage of pure instinctive intuition, and (iii) the stage of intellectual feelings. Whitehead reminds us, however, that these three stages are not sharply distinguished. He says: "There are stages in which there are propositional feelings with every degree of importance or of unimportance; there are stages in which there are intellectual feelings with every degree of importance or of unimportance. Also, even in a higher stage, there are whole recesses of feeling which in the final satisfaction acquire merely the characteristics of their own proper stage, physical or propositional."[1]

Summary

The fundamental entities in the Organic Philosophy are "actual occasions" and "eternal objects." But there is also a third type, "propositions," important for the introduction of novelty into our world and indispensable for consciousness and the higher phases of experience. A proposition is a complex consisting of a definite nexus of actual entities and an eternal object standing in the relation of "potentially" qualifying the nexus as a predicative pattern. A proposition may be regarded as a hybrid between pure potentiality and actuality—"the tales that might perhaps be told of particular actualities." The actual entities involved in a proposition are called the "logical subjects"; the eternal object potentially qualifying the logical subjects is called the "predicate" or "predicative pattern." The logical subjects are an "abstraction" of the original nexus of actual entities, and the predicate of a proposition is a "restriction in generality" of the eternal object. The truth or falsehood of a proposition concerns only the "subject" entertaining a propositional feeling, with a proposition for its datum. The main function of a proposition is that of a "lure for feeling." New propositions come into being with the creative advance of the world. Propositional feelings only arise in a *late* phase of the concrescent process. The

[1] *P. & R.*, p. 397.

nature of a proposition makes it completely impartial in respect of the various subjects prehending it. The different sorts of propositional feelings are divided into two main types, termed respectively (*a*) "perceptive feelings," and (*b*) "imaginative feelings." This difference is founded in the comparison between the "indicative feeling" from which the logical subjects are derived, and the "physical recognition" from which the predicative pattern is derived. A propositional feeling is "unauthentic" when the predicate is distorted from the truth by the peculiar subjectivity of the prehending subject of an actual entity: it is "authentic" when the predicative pattern of the proposition is derived straight from the physical feeling called "physical recognition" and there is no "reversion" introduced by the prehending subject.

Propositional feelings are dominated by "valuation" rather than by "consciousness." Consciousness, however, will be present in experience when certain feelings are components in an integral feeling whose datum is the *contrast* between a nexus which *is* and a proposition which in its own nature *negates* the decision of its truth and falsehood. Generally speaking, it may be said that consciousness is a certain way of feeling the contrast between the fact which is "given" and a mere "possibility." When the content of an integral feeling is a contrast between either "what actually is" and "might *not* be," or "what actually is *not*," and yet "might be," there will be consciousness. Consciousness is *how* the affirmation-negation contrast is felt. It is the "subjective form" of the integral feeling of such a contrast. Consciousness only arises in a late derivative phase of the process of complex integrations.

The higher phases of experience are termed "comparative feelings." The two main types of comparative feelings are (1) Intellectual Feelings and (2) Physical Purposes. Intellectual feelings arise from the integration of a "propositional feeling" with the "indicative feeling" referring to a nexus of actual entities regarded as logical subjects. Physical purposes arise from the integration of a conceptual feeling with the basic physical feeling from which it is derived. Intellectual feelings are concerned with experiences of "contrasts." An intellectual feeling is a feeling of contrast between matter of fact and potentiality, and the "subjective form" of an intellectual feeling of contrast is consciousness.

A "belief" is a feeling whose datum is a proposition, and whose subjective form includes a certain eternal object associated with some gradation of intensity. This eternal object is "belief character."

A "conscious perception" is the comparative feeling arising from the integration of the perceptive propositional feeling with the original physical feeling. Error in conscious perception has its origin in conceptual functioning in the form of "reversion." The contrast

experienced in conscious perception is the datum of an integral feeling, whose subjective form expresses itself in vivid immediate awareness of what the nexus really *is* in the way of potentiality realized.

"Judgment" generally can be described as the subjective form of the integral prehension of the conformity or non-conformity of propositions and objectified nexus of actual entities. Judgment is a feeling in the innermost nature of the subject, and the judgment is made about itself; the proposition is the datum of the judgment in abstraction from the judging subject. The judgment can assume three forms, (i) the "yes-form," (ii) the "no-form," (iii) the "suspense-form."

What is called the "intuitive" judgment is the comparative feeling whose datum is constituted by the generic contrast between the nexus involved in the "indicative" feeling and the proposition involved in the "imaginative" feeling. Conscious perception and intuitive judgments are much alike. In the last resort the difference between the two experiences has its origin in the fact that conscious perception involves a "perceptive" feeling, and an intuitive judgment involves an "imaginative" feeling. But the distinction between the two types of comparative feeling is not absolute. The triumph of consciousness is associated with the negative type of intuitive judgment.

The main function of intellectual feelings is neither belief, nor disbelief, nor even suspended judgment. It is to heighten emotional intensity in the valuation of conceptual feelings and physical purposes.

"Physical purposes" are also a type of comparative feelings, but a type more primitive than intellectual feelings. A physical purpose is a comparative feeling of contrast between a physical feeling and an eternal object. The physical feeling is the experience of feeling a real fact; the conceptual feeling is the valuing of an abstract possibility. The synthetic feeling integrating both these feelings in one integral feeling of contrast, is a physical purpose. The attitude of the subject at the level of physical purposes is that of "valuation." If the valuation is favourable-"adversion," the creativity absorbs the favourable valuation: if the valuation is unfavourable-"aversion," the creativity inhibits or eliminates the possibility. Adversion promotes stability, aversion permits change, "but only in the direction of triviality." The valuations of physical purposes by the mental pole of actual entities determine the relative efficiency of various feelings involved in a concrescence, in their rôle of objectifying the subject beyond itself in the creative advance. In this latter function, mental operations permit the subject to act as an "efficient" as well as a "final" cause. In the more complex type of physical

purpose, intensity of "aesthetic" experience may be increased when two or more contrasts conspire to form a higher contrast. Complex physical purposes play an important rôle in the life-history of an "enduring object." By promoting a *chain of contrasts* along the whole route of its existence, between the physical feeling with its primary valuation, as one factor, and the conceptual feeling, as the other factor, they enhance the intensity of feeling of an enduring object. The enduring object also gains a rich experience from the inheritance of a stable rhythmic character throughout its life history.

The valuation of possibilities by the mental pole of actual entities on the level of physical purposes, determines the novelties that are admitted into the creative process.

NEW BOOKS

The Nature of Metaphysical Thinking. By Dorothy M. Emmet. (London: Macmillan & Co., Ltd., 1945. Pp. xii and 238. Price 10s. 6d.)

This important book is a contribution to the methodology of metaphysics. Metaphysics has fallen on evil days; if we are to restore it to a worthier position the first requisite is that we should be clear as to what metaphysics can do and how it can do it. In other words, we need to explain the nature of metaphysical thinking. Now thinking, in Miss Emmet's opinion, has two functions, first, the co-ordination of experience and, secondly, the understanding of the real world. And metaphysical thinking is an effort, first, to co-ordinate not some part of our experience but the whole of it, and, secondly, to lift the veil (in so far as this is possible at all) on the ultimate and final reality.

The main suggestion which Miss Emmet makes is that in carrying out both these functions human thinking is essentially analogical. It is its analogies which help it to co-ordinate experience and it is by thinking analogically that we come to know as much as we do of the real. For the real, in Miss Emmet's opinion, is not known directly; it is a transcendent. Yet since we can argue analogically from what we do experience directly we can have some insight into the real and into its final nature. Thus metaphysical thinking is fundamentally analogical in character. The use of such analogical thinking, however, is not confined to metaphysics. Miss Emmet seeks to show that it is present in scientific thinking, in thinking about religion and in history. It is even present, she would say, in the thinking which accompanies sense-perception. We must consider how thinking is analogical in each of these cases.

Before we do so we need to ask what analogical thinking is. In particular, in what sense is metaphysical thinking analogical? Clearly we do not mean by analogy in this context mathematical proportion ($2 : 4 :: 4 : x$) nor, again, the analogy in inductive thought (*A* is *a b c d*, *B* is *a b c*, therefore B is likely to be *d*). The sense in which a parable is an analogy is nearer to our meaning. Miss Emmet gives five senses in which metaphysical theories may be analogies: (*a*) an analogical "deduction" in a particular case from the supposed pattern of the universe in general, (*b*) an analogy from experience to illustrate the nature of what lies beyond it (If the latter is *entirely* beyond experience we cannot think it analogically, since we are in complete ignorance of its nature. To attempt to think it analogically, as Miss Emmet says (p. 11), would be to project "a phenomenal relationship on to a transcendent real which was strictly unknowable"), (*c*) a clue given in experience revelatory of the ultimate nature of things, (*d*) co-ordination in the light of such a clue, (*e*) reflection upon experienced relationships which leads to certain conclusions about that which *is* in a final sense. It is more particularly these last two senses which Miss Emmet has in mind when she speaks of metaphysical thinking as being analogical. Miss Emmet also explains what she means by *being* in this context. It is (*a*) "that which exists," (*b*) that which makes true categorical propositions true, and (*c*) that whose final nature is not known directly by us. "We have no direct apprehension of the intrinsic properties of 'that which is' in itself. We have only indirect apprehensions, arising out of relations in which we stand to it" (p. 17). "That which is" is transcendent in the sense of being *other* and being independent—"being or existence apart from our interpre-

tations"—and not in the sense of being completely beyond our knowledge. Metaphysics deals with this transcendent which yet is not *wholly* beyond. (The obvious difficulty which already faces us is how we are to retain this transcendence whilst also claiming that we can—indirectly—know something about it and know it not through an imposed Word of the Barthian type spoken *ab extra* but through philosophical or metaphysical reflection.)

Miss Emmet explains where she stands in relation to the three theories of realism, idealism and phenomenalism. In so far as realism claims direct knowledge of that which is, she rejects it. Such a theory, she thinks, cannot give us a satisfactory explanation of "error, illusions and the changing perspectives of our sensa." On the other hand, idealism neglects the real difference between perception and thought. Perception, in Miss Emmet's opinion, is not direct knowledge of the real, but neither is it "mere" thinking or mere idea. Miss Emmet's own philosophical standpoint is more akin to phenomenalism, though it cannot be identified with it. For she holds that beginning with phenomenalism we can yet pass beyond the phenomenal and so say something about the transcendent. On this point most phenomenalists would disagree with her and it is certainly a difficult point to maintain. To understand it better we may consider what Miss Emmet has to say about sense-perception.

Following Whitehead Miss Emmet thinks of sense-perception in terms of the response of the whole human organism to stimulation. It is in the first place an affective response, and this is the "adverbial" mode of sense-perception. But the mind is also reflective and begins to discriminate between the various sense-perceptions; they become "accusatives" of a knowing subject. The question then arises how from such felt responses we can go on to gain any information about the physical world. Whitehead and the *Gestalt* theorists would hold that there is an identity of structure between the phenomenal experienced and the transcendent. Köhler even goes so far as to talk of an iso-morphism of sense-experience, physiological process and physical object situation. Miss Emmet thinks that some of the information which the physiologists give us about the physiological correlates of sense-perception contradicts the theory of iso-morphism, and she very much doubts whether we are in a position to say that the perceptual and the physical have an exact structural correspondence. For we are not to regard sense-perception as passive receptivity, especially in its "accusative" mode. The mind seeks order and pattern in its sensory experiences, thinking is already present, and conceiving. It "redintegrates" the sensory manifold and *thinks* objects. But these objects need not then be "projections" of the physical objects. Why should they be? There is no one-to-one correspondence in structural detail between the thought-object world and the physical-object world. All we can suppose is that the thought-object world is some sort of "analogy" of the physical-object world. For it is patterned out of the felt responses of the organism to the physical and so we can hope something of the original order is retained. Moreover, I find that my thought-object world corresponds to that of other human beings, so that I can communicate with them, and my thought world is to that extent "public." "All we can say with assurance is that there is some close concomitant variation between changes in the pattern of the external field and changes in the pattern of perceptual experience" (p. 192).

In this very brief summary I am afraid I am not doing justice to Miss Emmet's very interesting attempt to give us a phenomenalism "with a difference." A full examination of it would also require much more space than I can now give to it. Miss Emmet, it must be said, at least faces the real difficulties. She shows how phenomenalism is too easy a way out of those difficulties (p. 60). At the same time she sees that we do not in sense-perception know the

physical world as it is, and she avoids the over-optimistic theories of Whitehead and the *Gestalt* school. The consequence is that she is left in a position which she herself must feel to be unsatisfactory. Can she really say "with assurance" that there is "some close concomitant variation between changes in the pattern of the external field and changes in the pattern of perceptual experience"? We begin with felt responses, a "situation of relatedness"—but not necessarily with a situation in which the mind is *aware* of the relation and so aware of the *other*. Thus it is not clear how we ever come to know that there is a physical-object world other than the thought-object world. Granting, however, that the original "situation of relatedness" does involve such knowledge, is it direct knowledge? And if it is, how can Miss Emmet say we have *no* direct knowledge of the physical world? If it is not direct, what sort of knowledge is it? Again, having gained this knowledge of the existence of the physical world how do we gain further knowledge of its nature? What we construct and evolve in thought, it appears, has no one-to-one correspondence with the physcial world. Miss Emmet only recognises the loose analogical correspondence. But how are we to know when the analogy is a sound one if we have no direct knowledge of the transcendent's nature? Some parts of our conceivings have nothing corresponding to them even analogically in the real world, other parts have. But what parts? I cannot see how Miss Emmet can begin to explain what particular constructions do "present" the real in an analogical way. It is true that we succeed in communicating with one another. But does not this suggest that sense-perception in fact is much more revelatory of reality than Miss Emmet makes it out to be?

Miss Emmet next attempts to show the presence of analogical thinking in science, religion and history. The working scientist is "incurably realist," but the theorist when he reflects upon scientific procedure finds it difficult to justify such realism. Miss Emmet is not prepared to accept the idealist theories of scientific thought set forward by Eddington and Cassirer, but she does think that the idealists are right in holding that "we can only be aware of anything in so far as we know it through the interpretative forms of our experience." On the other hand, to picture science as "the self-development of thought" is to ignore that empirical side which is so important an element of science. Miss Emmet, however, interprets the "empirical" in terms of her theory of sense-perception. She thinks of the scientist as constructing not merely concepts such as objects, but also co-ordinating concepts which enable him to order his experiences, and these co-ordinating concepts she again regards as analogies. Even the idea of mechanism, for instance, is regarded as analogical (p. 90). Now no one would deny that the scientist has such working concepts and Miss Emmet's description of them is illuminating. But one wonders whether it is right to think of them as analogies? That is to say, do we best understand their nature by thinking in these terms? Is it not more correct to think of them as hypotheses based not on "felt responses" but on knowledge of the physical world, some of which is quite certain and beyond all doubt and the rest of which is probable? This would presuppose, of course, quite a different theory of sense-perception.

What Miss Emmet has to say about religious thinking reveals her very thorough acquaintance with the situation in the theological field. Her criticisms of such writers as Barth, Heim and other theologians, certainly make very interesting reading, though I am not competent to estimate their worth. In religious thought it is clear that the analogical element is indeed very important. Religion, Miss Emmet thinks, is the outcome of "the impingement upon his [man's] life of power beyond himself, whose intrinsic nature he does not know, and yet which vitally concerns him" (p. 103). Here the transcendent

(or rather now the Transcendent) is in one sense *wholly* beyond our experience. Our complete ignorance *itself* awakens religious awe. "From the deep emotional grasp of this comes the religious sense of the Wholly Other" (p. 102). In other words, the clue now is just the sheer absence of clue. Yet if we are to *think* this Transcendent, and (*pace* Barth) we *must* try to think it, we need symbols which we know from the start cannot be adequate. These symbols are analogies. Now the really important question is the one Miss Emmet asks on p. 111. "Have we any direct knowledge to guide the selection and disciplining of our analogies?" But the answer she gives is not altogether clear. The immediate answer is a negative one. We should not suppose our analogical thinking to be literally true. The positive answer, I believe, is that we are directly acquainted with certain relationships, the result of the "impingement" to which Miss Emmet has referred. We are aware of our finiteness and dependence as against an infinite and true independent, we are aware of our evil as against the perfect, of our "this-worldness" as against the "numinous." These dim awarenesses are the bases of our analogies. Miss Emmet's discussions of these matters tends to be vague and obscure—perhaps it is impossible for them to be otherwise. (Yet cannot one say something a little more definite about these analogies and symbols of religion? For when the religious person speaks, for instance, of God as Father is he not saying that God cares for His own in the way in which a father cares for his children? Perhaps he is mistaken in thinking in this way. But he knows very well what he means. He uses an analogy, of course, but he is also directly ascribing to the Deity this characteristic of providential care as one of His attributes. Again when he speaks of Him as Light he is ascribing to Him another attribute, that of intelligence, the same sort of attribute as we find in ourselves though we are aware that intelligence is limited in us. The analogy in this case is indeed one between the physical and mental, rather than between finite and infinite. We take light in the physical world to be analogous with intelligence in the mental, and the religious person supposes himself to share in the intelligence which is found in a supreme sense in the Deity. Such analogical thinking may involve assumptions about the Deity which cannot finally be justified, but its nature is fairly clear.)

Miss Emmet next applies the same analogical theory to history, the transcendent in this case being the past and the analogies such conceptions as "movement," "period," "revolutions," on the one hand, which are analogies from the physical world, and on the other analogies of a more metaphysical order, such as "purpose," which seek to make sense of the whole historical movement. We have to distinguish, Miss Emmet thinks, between history *a parte subjecti*, an ideal construction of the historian's, and history *a parte objecti*, what really happened. "The difficulty is that the latter can only be seen in terms of the former; the course of events in itself is a form of transcendence, an object beyond our minds. The status of the transcendent object which constitutes history in this sense is hard to determine" (p. 158). In respect to what Miss Emmet says of history I merely wish to make two comments. First, is not memory a direct knowledge of the past? If so, is the past really "transcendent"? I remember my own past, and many historical documents are statements of what was remembered to have occurred in the past. They are not all reliable, of course, but are they *all* unreliable? Secondly, while it is true that the historian makes use of analogies of the kind suggested by Miss Emmet, are we saying anything at all about the *essential* elements in his method of procedure when we call attention to this use of analogy? Is not the use of analogy in his case a subsidiary and comparatively unimportant element in the whole?

Lastly, Miss Emmet discusses metaphysical thinking proper. The discussion is introduced by an admirable exposition and criticism of the Thomist doctrine of *Analogia Entis*. The Thomist begins with existence, and argues that the *ens realissimum* must exist since we know that something exists. This most real being must have the qualities which all being has, namely, unity, distinction, goodness (in the Thomist sense) and truth. In addition we may suppose the most real being to possess all the perfections which we find present in a limited degree in the effects produced by this First Cause. Miss Emmet doubts the validity of the notion of necessary Being and also questions whether analogies from modes of being can be applicable to absolute being itself. Any argument from the effect to the First Cause is suspect since "causality" in this case is itself analogical.

What, then, can be said metaphysically about the transcendent? What can we say about real being? Miss Emmet answers in the first place that "if we can establish structural relations within perceptual experience and formulate them accurately, there are likely to be structural relations in the external world which they do not necessarily repeat, but to which they bear some systematic proportion" (p. 192). And on the next page she talks of "a relation of systematic concomitant variation" as holding between the physical, the physiological and the psychological processes in perception. (We have already seen, however, that it is exceedingly doubtful whether Miss Emmet can rightly claim this much on her system.) Out of these sensations we "redintegrate" perceptual objects and then in science put forward our theoretical interpretations. Finally, we seek for metaphysical models. Their creation involves metaphysical judgments, that is to say, "total" assertions involving the notion of something especially significant or important. "They are derived predominantly from some particular type of experience, e.g. intellectual, aesthetic or moral, which has seemed to provide a clue in terms of which a *Weltanschauung* or philosophical attitude could be developed" (p. 194). We cannot directly demonstrate the truth of such judgments as these. But we can apply the three criteria of coherency in perspective, comprehensiveness and the sort of self-evidence which makes us greet the judgment with an "Of course." Our metaphysical theory consisting of such judgments will inevitably be selective. "A metaphysical thinker may try to see life steadily; he cannot see it as a whole" (p. 227). It will also inevitably be analogical. "For we have said that there is no direct apprehension of the intrinsic nature of transcendent reality. We only know it through relationships interpreted in the symbolic forms of our thinking" (p. 207). These relationships provide the analogy.

Thus Plato found in the intelligible beauty of form and pattern the key to the nature of the universe. But may not the metaphysics of Plato be a sort of lyric expressing his self and his emotions rather than the truth? Metaphysics is the outcome of one's experience and if experience is the very "subjective" thing it appears to be on Miss Emmet's showing is it possible then to meet the charge that it is wholly divorced from reality? Miss Emmet replies: "This can only be answered, as far as I can see, if it can be maintained that experience is not only a spontaneous process of form creation, but arises out of a relation to that which transcends the subject. The transcendent may then be outside our categories; but that does not mean that it is entirely outside our experience" (p. 205). A superficial criticism would be that if it is not outside my experience the transcendent is no longer truly transcendent, but such criticism *is* superficial since of course Miss Emmet recognises the point and yet claims that we do gain some insight into the nature of the transcendent.

I hope I have made it plain that this book is worthy of very serious consideration. In my opinion it throws considerable light upon the task of the

metaphysician. It shows that metaphysics is a difficult discipline, even an obscure one, yet none the less inevitable. (One may of course dig one's head into the sand with the positivist if one so chooses, but that is surely a very foolish attitude to adopt.) It also shows how important in the metaphysical realm is the analogical method and how important it is that we should try to understand this method. But my doubts are about the book's denial of knowledge of being other than analogical knowledge. When I use a symbol must I not have some knowledge of that which is symbolized? And when I use analogies must I not also know sufficient about that which is being depicted by means of the analogy to recognise it? Can I have an analogy of the completely unknown? Miss Emmet, of course, would admit that I cannot. But she has so little to say about this non-analogical knowledge. The only relief from subjectivism provided us is found in obscure relationships, such as, for instance, "a sense of impingement" or finding oneself in "a situation of relatedness." Surely, our knowledge of being is not so slight and so vague as Miss Emmet's theory implies.

I have criticized a great deal, but my final word must be one of thanks for a splendid piece of philosophical writing, which perhaps if I had studied more I should have understood better and criticized less. I have heard that Miss Emmet wrote most of this book whilst fire-watching. Never were those dreary hours put to better use! R. I. Aaron.

Happiness, Freedom and God. By C. A. Richardson, M.A. (Harrap. 1944. Pp. 221. Price 7s. 6d.)

The form of this book leaves something to be desired. It is meant to supplement a volume called *Spiritual Pluralism*, published some twenty-five years ago, in which the author expounded a metaphysical theory of monads on broadly Leibnizian lines. He has no wish to change the general point of view there expressed, he now tells us, but wants to go beyond it, in a way he foresaw to be necessary in *Spiritual Pluralism* itself, by considering the question of the unity of the universe. Accordingly he offers (1) a theory of ethics, and (2) a defence of theism, both on the basis of his former conclusions. He repeats the latter and recapitulates some of the arguments which led to them; but in general is content to refer to the earlier book for the substantiation of his main position. This procedure, in view of the lapse of time between the two volumes, has the effect of leaving much of the new discussion in the air. Mr. Richardson would have been better advised to write a fresh metaphysical essay rather than add to one written when the state of the philosophical world was very different from what it is now.

There is another respect in which the form of the book is conspicuously unsatisfactory. Its author has something of a tendency to digress, and at one point lets himself in for a digression of some fifty pages. He is considering the problem of the metaphysical status of time, which is relevant to the questions he wants to raise about freedom and immortality, and arguing that temporal relations hold only between parts of the object of experience and do not apply to the experiencing subject. This leads him to a discussion of causality and probability and an attempt to state the facts of perceptual experience in terms of a timeless observer and events which may or may not happen to him. In the field of physics his theory produces results which reflect all the most striking doctrines of modern science, and he proceeds to argue that the space-time of the physicists is only a convenient way of conceiving the probability relations of events. Now though all this has an interest of its

own, it is only the general principle that time is not an ultimate constituent of the universe which affects Mr. Richardson's main argument. The detailed working out of the theory, involving as it does considerable use of mathematical symbols and formulae, and presupposing in the reader an ability to follow an argument stated in terms of them, is not necessary for the comprehension of the rest of the book. To have published it separately would clearly have been the best course.

Mr. Richardson describes the philosophy he advocates as a combination of ethical empiricism with metaphysical theism.

(1) *Ethics.*—The author's contentions can be summarized as follows. Happiness, defined in a way strongly reminiscent of Aristotle, is or should be the basic concept of ethics (pp. 29–30). Happiness is continually sought for by human beings, though of course they are often mistaken about how to get it (p. 30). All men seek their own happiness first and foremost, but the happiness of each is bound up with that of all, and in fact we can produce a metaphysical explanation of why this should be (p. 42). In making any value judgment we should consider solely whether what we judge will promote happiness or not, and only if we do can there be any intelligent argument about values (p. 37). On this basis Mr. Richardson proposes to abolish the notion of moral obligation as meaningless in theory and noxious in practice (pp. 119ff), and to replace goodness (as normally understood) by wisdom as the moral quality to be sought and admired (p. 200).

All this is simple enough; too simple, indeed, to be convincing. For even if we agree (which we might well hesitate to do) that no one would seriously advocate genuinely unselfish action, the notion of moral obligation may still retain some meaning. The wise man of Mr. Richardson's conception will prescribe certain acts as likely to promote happiness and forbid others as leading to misery. But though to obey him would be to our *ultimate* interest, it does not follow that we shall *here and now* want to do as we are told. How then is pressure to be brought to bear upon us? It seems that we must have recourse to the idea of moral obligation whether we use the term or not, and invest the dicta of the φρόνιμος with the traditional sanctity of moral law. And in this connection we must surely pay more attention than Mr. Richardson does to conflicts between the interest of the individual and the common interest of society. To say that these are the products of misunderstanding because we all ultimately aim at the same thing will not help us to decide in a concrete case whether to prefer our own immediate interest or that of our neighbour.

(2) *Theology.*—Mr. Richardson's theology is independent of his ethics, though he thinks that God's activities tend to promote universal happiness to an increasing extent (p. 146). Conversely, he regards the fact of progress (which he is disposed to accept) as a reason, though not a very strong one, for believing in God. His main argument for God's existence is, however, on Leibnizian lines. It is justifiable, he says, to postulate the existence of a plurality of subjects (existence having already been shown to be subjective in nature, and some existence to be necessary). But these subjects are not an aggregate but form a universe or organic unity of being, and hence must be supposed to be related to a single unitary substantial being (p. 151). I confess that I find it incredible that this should be offered as a serious argument. Why, after all, should the monads not form a universe without the relation here asserted? Mr. Russell long ago objected to Leibniz's theology on the ground that a consistent monadism must be atheistic. Mr. Richardson postulates monads which interact, but his God seems to be just as otiose as the God of Leibniz.

I have no space here to comment on Mr. Richardson's views on immortality or on his interesting suggestions about the extent to which God may be supposed to share human experience; but I should like before concluding to deal with one point of general epistemological interest. Although this book is a metaphysical treatise, it contains no justification of metaphysics as such. Nevertheless, it seems clear that the author would, if pressed, defend his own procedure in constructing a system of metaphysics by a reference to his doctrine of "realization." Awareness of one's own existence, he claims, is immediate in character and different in kind from all other forms of knowledge; indeed it should not be called knowledge at all, since knowledge presupposes a distinction of subject and object, and this is more intimate and undivided. Such awareness is here given the name "realisation," and it is held to be beyond doubt that we "realize" our own existence as subjects of activity. But what is it that we know by doing so? Mr. Richardson himself says (p. 18) that self-knowledge in the sense of knowledge of one's qualities is not "realization": the self of introspection is an object self. What then is the subject of experience whose existence we "realize"? It seems to be nothing more than Kant's transcendental unity of apperception. But that, as Kant showed, is scarcely an adequate basis for a metaphysical system. Mr. Richardson only avoids having to admit that, it seems to the present reviewer, by his persistent confusion between the subject and the object self: he nowhere distinguishes clearly and explicitly between the timeless monad which is the genuine subject and the self of introspection whose phases are in time like those of any other object. But the confusion recoils on its author, for it leads him into the difficulty of explaining how timeless monads can be said to "develop," and how progress can be so prominent a feature of the universe.

It is only fair to mention that the book is written with singular clarity, and that the author takes the greatest pains to make his points clear.

W. H. Walsh.

The Dvaita Philosophy and its Place in the Vedānta. By Vidwan H. N. Raghavendrachar, M.A., and A. R. Wadia. (Mysore: The University of Mysore, 1941. Pp. viii + 282. Rs. 3.)

Mr. Raghavendrachar has undertaken the difficult task of representing the system to which he is bound by religion in the impartial way of an objective philosophical study. Philosophy to him means: to reveal the nature of the ultimate reality (p. 13), but, on the other hand, he claims that philosophy has the practical and ethical ends of the world's uplift (p. 190). Here already two different aims, a merely epistemological and a pedagogical one, are taken together. Further considerations come in from the religious angle. As an orthodox Vedic scholar Mr. Raghavendrachar defines philosophy proper as philosophy together with the interpretations of the Veda (p. 221). Besides, as a devout follower of the Madhva School of Viṣṇuism, he propagates as a means of philosophy the study of Viṣṇuite teaching (*Viṣṇuśāstrāvamarśanam*, p. 207).

It is from these divergent presuppositions that Mr. Raghavendrachar's essay is written. While taking his starting point from epistemology, the author puts into the foreground the investigations of the ultimate reality and knowability. Thus he emphasizes less those problems which are generally considered as the central ones of Indian philosophy, i.e. the problems of philosophy of religion, than those of philosophy general, of Consciousness and Ego, of Error and canons of Truth, etc. This results in an unusual explanation, or rather

repudiation, of the term "Dvaita Philosophy." Mr. Raghavendrachar claims that the theological problem of the identity or difference between the *Jīva*, the individual Soul, and the Brahman, the universal Spirit, has not essential bearing. He asserts that the so-called *Dvaitam* is in reality a *Brahma-Advaitam*, not unlike the classical *Advaitam*, monism and identification between the highest and the individual Ātman, and not unlike also the *Viśiṣṭādvaitam*, the modified monism or dualism (mono-dualism, as it were). Mr. Raghavendrachar points out that Madhva, the founder of the so-called *Dvaita*-school, never himself used the term *Dvaitam*, but only draws the distinction between *svatantram* and *a-svatantram*, between independent and dependent entities. Brahman, which is here identified with Viṣṇu, is interpreted as the only independent ground of the world from which originate all dependent, i.e. empirical, phenomena in which the *Jīvas*, the individual Souls, are included. Thus the religious question is turned into an epistemological one, and he strives to put Śaṅkara, the pure Monist, logically in the wrong, as confusing through his identification of Brahman and *Jīva* the "condition" with the "conditioned."

On the other hand, Mr. Raghavendrachar approaches the problem as a professed Realist. "Actual difference is the core of reality" (p. 184). Thus the very same empirical world which he beforehand claims as but "conditioned," becomes now for him the centre of his investigation. The confusion between "condition" and "conditioned," for which he blames Śaṅkara, the Idealist, arises for himself from his realistic standpoint. Śaṅkara, in the opinion of the reviewer, avoids the difficulty of such a confusion by proclaiming that all "conditioned," all empirical singleness, is only of lesser truth, is only a *laukika* expression for the understanding of the masses, while in reality (*paramārthatas*) all differentiation is non-existent. Madhva and his present interpreter, on the other hand, emphasize that even in the unifying stage of liberation differences between the Divine and the *Jīva* and among the single *Jīvas* themselves are still upheld.

Mr. Raghavendrachar's second definition of philosophy quoted above is that of philosophy as a practical means of betterment of the world. This pedagogical purpose of philosophy gives the author the opportunity of advocating his own sectarian standpoint. The Vedānta is for him the best of all possible systems and reveals undoubtable and unquestionable truth. Thus it complements, or it even corrects, the truth gained from empirical facts. Among the Vedāntic Schools he considers his own, the Madhva School, the most accomplished one. Consequently, he has to devalue Śaṅkara's views from this angle also. Śaṅkara, he claims, has only made use of *mahāvākyas*, great sayings of the Upaniṣads; he has to concede to his opponent that he finds support for his interpretations in the most significant Upaniṣadic teachings. Not many other equally valid *mahāvākyas*, nor lesser Upaniṣadic sayings are, however, introduced by the author in favour of his own against Śaṅkara's standpoint. Partly this omission is due to Mr. Raghavendrachar's basic dogma that the Veda as a whole is revealed truth and cannot be contradictory to itself; partly—at any rate as the reviewer sees it—it is due to the fact that Śaṅkara's explanations are the most representative of the main Upaniṣadic doctrines.

The difficulty of Mr. Raghavendrachar's self-imposed task of subjective and at the same time objective representation is clearly evident throughout his work. Equally evident, however, throughout Mr. Raghavendrachar's expositions are his two remarkable gifts: genuine religious devotion and excellent training in logical discussion.

BETTY HEIMANN.

The Nature of Self. By A. C. Mukerji. (Allahabad: The Indian Press. 1943. vii + 393. Price, 7/8/- Rupees.)

The author, starting with the Ego-centric paradox, criticises the various methods of dealing with the problem of Self and puts forth his own method, frankly admitting its tremendous difficulties, yet hopeful that it will offer a solution. Kant, Ward, Hegel, Green and E. Caird are duly appreciated. At this point sets in the comparativist's attitude with its unifying and reductive procedure of tracing similarities between the leading thinkers of East and West, taking as representatives of the former mainly Śankara and Rāmānuja, and probing into the merit of the recognised Indian systems of thought, of Buddhism, of Vasubandhu and Nāgārjuna. His familiarity with the principal theories of consciousness in some great Western thinkers such as Hume, Bradley and Alexander makes the two chapters on Consciousness as a quality and Consciousness and Change especially attractive. He brings his investigation to its climax with a discussion of the problem of "absolute" consciousness, and concludes with a chapter on Hegelian Absolutism, admitting that the Absolute cannot be reached through any kind of relativity. The author describes the present state of affairs with the concluding sentence, "To have raised philosophy from the particular to the universal was in itself a great achievement, but it is now necessary to raise it further from the universal to the Self."

In his own theory he subscribes unmistakably to the main tenet of the oldest Upanishads "na iti, na iti" ("it is not so") when he says (p. 322), "The Absolute is best described negatively."

In the Introduction the author states that he is not one of those who believe that Indian Philosophy contains wisdom which is unsurpassed and unsurpassable (vi). This assertion ranks him with the majority of learned Indians who under European influence have become Universalists, whose ideal is a synthesis between East and West. He falls away from the ancient indigenous wisdom of the forest sages, and tries to recast this wisdom through a blend of heterogeneous doctrines which destroys the originality of its components. In this process of "synthesis" the original ingenuity of both sides is lost through misrepresentation, and the greater the distances in space and time the greater will be the distortion which the original suffers through superimposed interpretations based on translation.

One great difficulty in this treatment of the nature of self is felt by the author himself all through. His arguments and deductions are beyond challenge, they conform to the rules of the noble discipline of philosophy. If any challenge is to be made it is against the primary conception of the problem and the presupposition from which these arguments are put forth, and which is contained in the title "the Nature of Self." For to attribute a "nature" to self is equivalent to describing the greater in terms of the lesser: the self which is everything cannot be expressed in terms of something that is merely a part. All that we can reasonably say is that the nature of the self is selfhood for which nothing else can be substituted: "I am that I am," Self *is* reality, but the nature of Self is a phantom because "Self" includes "nature." Even in a strictly logical judgment "Self" cannot be credited (attributed) with any other nature but its own, which cannot be brought under a higher category and which therefore both justifies and explains itself.

Here, as so often in the case of paradoxes, there is a natural difficulty which lies in the expedient of human language. "Self" is an ambiguous word denoting the most elusive notion of all and referring to a great variety of phenomena which, in their mysteriousness, hide and indicate a secret invisible agent

behind their appearances. "Nature" is also a word with several dozens of meanings denoting an elusive substratum of existence. The interplay of these variables can be diversified in a hundred variations, all amounting to an allegorical representation of something which, although it can be seen, felt, heard, and described, is *per se* invisible, insensible, indescribable; and all description of which is but a suggestion of a vast, all-comprehensive ocean of movement. This movement is inherent, it "its" own nature, and the changing substance does not "suffer" change under the influence of an impacting force.

What I want to bring home with these remarks is that as long as we use these elusive symbols and words to express something that in virtue of its own elusiveness is beyond expression (because it comprises that expression within itself) we can go on with allegorical descriptions as long as we like and still be no nearer the truth in the end than at the beginning. In this way we can speak of the nature of Nature, of the Self of selves, of a higher and lower nature within nature, and it would be more to the point to discuss the dual nature of self instead of only its nature.

It follows that in the last analysis all this speculation is only a kitten chasing its own tail, or a shadow play which under the greater light of illumined insight and intuitive mystic comprehension vanishes into nothingness, is but an illusion, a *fata morgana*.

The main merit of Professor Mukerji's book is that it will help the student to find the self, i.e. him-self, by training his powers of self-observation. It may be summed up as an exposition of the method which the great thinkers of East and West have employed in the analysis of experience and of its reservoir, self-consciousness, i.e. the consciousness of Self.

W. Stede.

Naturalism and the Human Spirit. Ed. by Yervant H. Krikorian. (Columbia Univ. Press, New York, 1944. Pp. 397. $4.50.)

It will perhaps be best to start by just enumerating with their authors the essays contained in this composite work. They are *Anti-Naturalism in Extremis* by J. Dewey; *Naturalism and Religion* by S. P. Lamprecht; *Naturalism and Democracy* by S. Hook; *Naturalism and Ethical Theory* by A. Edel; *A Natural History of the Aesthetic Transaction* by E. Vivas; *The Unnatural* by H. W. Schneider; *The History of Philosophy* by G. Boas; *The Materials of Historical Knowledge* by E. W. Strong; *Naturalism and the Sociological Analysis of Knowledge* by T. Z. Lavine; *Logic without Ontology* by E. Nagel; *A Naturalistic View of Mind* by Y. H. Krikorian; *The Categories of Naturalism* by W. R. Dennes; *The Naturalism of Frederick Woodbridge* by H. T. Costello; *Naturalism in America* by H. A. Larrabee; and *The Nature of Naturalism* by J. H. Randall.

The book as a whole provides a good exposition and illustration of the naturalist approach in philosophy. The articles are interesting and well written, and in general reach a reasonably good philosophical standard. But it does not seem to me in the least likely that the work will convince anybody who is not already a naturalist. It proceeds rather by ignoring than by refuting the point of view of opponents, and there is no adequate discussion of epistemology, on which, after all, the naturalist claims to be in possession of the one sound method must presumably depend except in so far as it appeals merely to justification by results, which is easy in the physical sciences but not in more disputed territory. It is extraordinary and significant that not

one of the contributors[1] gives the slightest indication of realizing that in the use of inductive arguments such as are necessary even to empirical science they are already making assumptions which could not possibly be justified by any method that the naturalist officially recognizes. It may be said that there are valid grounds for making a distinction between the non-empirical assumptions necessary for induction and the non-empirical propositions which opponents of naturalism accept; but, if so, at any rate there is no attempt to set forth such grounds. Nor is there given a clear and unambiguous account either of what naturalism means or of the positions which the contributors to this book suppose themselves to be attacking.

The writers seem to be inspired by a certain missionary zeal and impressed by the idea that anti-naturalism constitutes a very serious practical danger by impeding the advance of science and the adoption of rational measures, and those of them who mention the subject are united by a common hostility to any metaphysical beliefs such as those of theism. Though some of them profess friendship to religion, it is difficult to see what would be left of it on their view save an emotion without objective foundation. On the other hand, I personally should welcome their protest against the practice of ascribing all our modern disasters to the decline of religion, as though there had been no disasters before, and against the suggestion that men can do nothing to save themselves without supernatural assistance. But the author of the chapter on *Naturalism and Religion* can hardly suppose that he has adequately refuted in four pages the argument for the existence of God to which so much of the best philosophical intelligence was devoted for centuries, and the assumption which seems to be generally made by the writers that belief in God must not be accepted because it cannot be brought within their naturalistic method constitutes a very weak argument, since it is quite obvious that, even if God exists, we could not *ex hypothesi* expect to bring knowledge of God under the method of naturalism, so that to object to the belief on such grounds seems suspiciously like arguing that there are no invisible objects because we cannot see them. That the method of empirical induction supplemented by mathematics and relying on verification should be pursued without restriction in the empirical field and should not be limited to purely material objects but extended to human nature without any reservations except our inability to push it further I grant; but is not this generally accepted now in theory, though not of course in practice, since religious people, and also scientists, are, being human, liable because of their prejudices sometimes to go against the view best supported by the evidence. It certainly does not need a book the size of the present one to establish naturalism in this sense. The attitude of the authors to ethics and value-judgment in general is, on the other hand, distinctly ambiguous. The last article, intended to sum up, claims that the contributors are unanimous in their opposition to a type of naturalism which claims to reduce "distinctively human values" to anything else, but it is not clear what the "reductionism" they reject would mean. Of course if it means that intelligent thought and aesthetic and moral experiences are just a moving of the larynx or a set of bodily sensations of the same type as those which an animal has, we may admit that the writers in question cannot be accused of reductionism, but it seems that those who have mentioned ethics would accept a view which reduces it in effect to a mere branch of psychology without having faced the problems raised by the rejection of non-naturalism in this field. Nor have they tried to deal with the charge, which would be brought against them by any "idealist," that before purely empirical data can be used at all, and perhaps even before there are any "data,"

[1] Pp. 360–2. Except, perhaps, to an inadequate extent, W. R. Dennes.

a process of interpretation must have been brought to bear, the canons of which cannot themselves be established by experience alone, or shown how their view that naturalism is the only method leaves any scope for philosophy at all, even the philosophical propositions which they themselves assert. I am not quarrelling with the contributors to this book because I disagree with their views, but because they have ignored the objections that influence philosophers against positions like theirs, and have therefore come little nearer to a solution of the problems.

I have left myself little space for discussing the articles in detail, but to do so adequately would have in any case taken up far too much space, and therefore I thought it better to concentrate on defects for which I think most of the writers, perhaps all, must face a share of blame. It seemed to me that the best of the contributions were *Naturalism and Democracy* by S. Hook and *The Categories of Naturalism* by W. R. Dennes. The chapter on *The Materials of Historical Knowledge* by W. R. Strong has an interesting suggestion for discriminating reasonable from pointless theories as to the past by means of the rule of "empirical equivalence" which requires the historian to abstain from hypotheses except where he can find something "continuous" with the alleged past existent in the present, and the chapter on *Naturalism and Ethical Theory* by A. Edel tries to work out an ethical theory on the basis of the phenomenon of choice in an interesting way. The historical articles are interesting and well written, but do not go very deep. The article on *A Natural History of the Aesthetic Transaction* does not seem to me specifically naturalistic, and I suspect that it depends on a use of "meaning" which could not be endorsed by naturalists.

A. C. Ewing.

Order and Disorder: A Study of Mediaeval Principles. By The Rt. Hon. Sir Henry Slesser. (Hutchinson and Co. London. Undated. Pp. 112. Price, 15s.)

"Our present tribulations," this author writes, "have followed almost inevitably from the loss of the great vision which inspired society during the long period from St. Augustine to St. Thomas." Since the decay of this vision in the fourteenth century "the modern world has staked its destiny upon secular assumptions." In the author's opinion secular assumptions are inherently ignoble. Nothing less than a theocratic ideal can regenerate our distracted and miserable world. We need to have an abiding and agreed belief that our civilization is builded of the Lord, and is a Civitas Dei. What is more, this City of God must be a City of the Christian and indeed of the Athanasian God. However imperfect the practice of the mediaeval world may have been, we should try, at the least, to understand its ideals. Then, but not before, we may attempt to refashion and enrich our civilization with our new secular knowledge and cunning inventions.

Accordingly the author gives us an account of the theologico-politico-social order of mediaeval conceptions in that part of the "world" where they were accepted at least nominally. In this huge task his exposition is necessarily condensed—though his book is about 70,000 words long—and sometimes, I think, it is unnecessarily huddled. He also provides a liberal dose of brief and confident comments upon post-mediaeval philosophies and ideologies.

What is one to make of such an argument? We seem to be invited to condemn modern secular views because of the sticky mess in which our civilization now is, and at the same time to ignore muddle and mess in the Middle Ages on the ground that they dreamed so nobly. They, it seems, had the only

possible right idea for the whole world. In principle the Saracens should have acknowledged it, and so should the Chinese and Japanese. The same holds for the Chinese and Japanese to-day. (Sir Henry doesn't mention these peoples, but his argument professes to be "universal" and to embrace the whole human family.) All must be Athanasianized.

A large part of the book seems to be designed to show that (the Christian and Athanasian) faith is "rational" to an extent even greater than St. Thomas and many other mediaevals believed. Here also I find the argument puzzling. If you could prove that the Athanasian Trinity exists you would have established such a case, but how is this done by enumerating the mediaeval proofs of "God's" existence, rejecting some, hedging about others (e.g. about the Ontological), never inquiring whether the "God" so demonstrated or not demonstrated could be identical with the "God" of Jacob, never attempting a new demonstration unless in statements such as the assertion that modern physics favours the idea of creation? "*If* the Christian view be held, our author says [italics mine], "it is obvious that Truth in its widest sense must depend upon authority, the authority of Christ, and that no discoveries in the temporal field can do more than exemplify the teachings of the Kingdom." Is this hypothetical proposition our rational basis for asserting the truth of the Christian view?

Sir Henry makes so many comments upon so many philosophers, ancient, mediaeval and modern, that it would be quite unreasonable to suppose that all of them are the result of careful, first-hand inquiry. Since he complains, however, that "exact thought, scrupulous criticism, and above all complete honesty" are sadly "lacking in latter-day theology and philosophy" (having passed to history and the natural sciences) he invites certain reflections *ad hominem*. Among many instances, I should like to call attention to p. 87, where Sir Henry says that Locke was an associationist "in greater or less degree," and regarded faith "as an example of perverse mental activity." But Locke regarded association uniformly as mental *aberration*, and even as "madness" (*Essay* II, ch. 33). Regarding faith and reason it would be odd indeed if the author of *The Reasonableness of Christianity* could be described with scrupulous accuracy in Sir Henry's terms. Moreover, Locke's chief assertion in the chapter on Faith and Reason in the *Essay* (IV. xviii 10), was this: "Whatever God hath revealed is certainly true; no doubt can be made of it: but whether it be a *divine* revelation or no, reason must judge" [italics Locke's]. Is *that* an instance of "perverse mental activity?"

JOHN LAIRD.

Reckoning With Life. By GEORGE ARTHUR WILSON, formerly Abbott Professor of Philosophy, Syracuse University. (New York, Yale University Press. 1942. Pp. x + 311. Price $2.75.)

This not inaptly named volume has three main sections, containing respectively a theory of nature, an account of the self and speculations on some basic metaphysical enigmas: the problem of evil, the question of immortality and the nature of the ultimate reality. The stage for the later discussions is set by the first of these, in many ways the most satisfactory of the three. Rejecting realism in its various forms, the author argues on Kantian lines that the physical world is constructed by the mind in response to stimuli from a source which lies beyond it. But he abandons Kant and comes nearer to Berkeley in believing that we can give some account of this source, and in fact describes it as a dynamic causal order, a "unity which transcends

space and time, and which acts in a way that is not mechanical but orderly and hence indicative of intelligence" (p. 92). In one place he even says that "when science analyses physical things into activities it is working its way through appearance toward the real" (p. 12). Professor Wilson also differs from the classical theorists of knowledge in holding that physical objects are values in a broad sense of that term, or in other words that the world we construct is the product of our interests as well as our cognitive faculties. The problem of phenomenal reality he solves very simply by saying that "the real object is to each observer just what he observes" (p. 62). He maintains nevertheless that there is an intelligible sense in which we can speak of a common world, because our nature is fundamentally social and because we are all responding to stimulations from a single source.

The weaknesses of this, to say the least, cavalier treatment of the problem of objectivity come out in the discussion of the self which follows. Beginning quite satisfactorily by pointing out the inadequacies alike of the traditional empiricist reduction of the self to the contents of introspection and of the pure Ego theory, against both of which he maintains that the self is primarily the active subject of experience, Mr. Wilson nowhere faces the problem (which is surely urgent for his type of view) of how reason, moral and speculative, can be "*la chose du monde la mieux partagée.*" Instead he offers a rather desultory review of the self's main activities on familiar post-Helegian lines. In the closing chapters, too, there is a curious unawareness of fundamental difficulties: in particular of the relationship of the kind of source argued for to the selves stimulated by it. We are told that the self is free, and led to believe that it is immortal; but in what sense such free and immortal selves stand to the ultimate reality which conditions them—in what sense they are themselves ultimately real—is not indicated. Yet this is surely not the least of the problems which one who professes to "reckon with life" must face.

W. H. Walsh.

Galen, on Medical Experience. By R. Walzer. First edition of the Arabic version with English translation and notes. (Oxford University Press. 1944. Pp. xii + 164. English price 12s. 6d. net.)

This book of which the original Greek text, with the exception of two fragments, is lost, is an interesting contribution to our scanty knowledge of the controversy between the two Greek rival schools of medical rationalism and empiricism. It consists of a short introduction, followed by an attack of a rationalist on empiricism, and the defence by an empiricist of his own position. Galen himself states in his treatise *de ordine librorum suorum*, chapter ii, that "On medical experience" reproduces a disputation between the rationalist Pelops, Galen's later master, and the empiricist Philippus, that the book was a work of his extreme youth, composed as it were as an exercise. Only in the introduction does Galen express his own opinion, but here is a difficulty which Dr. Walzer does not elucidate: one would expect to see Galen, a pupil of the rationalist Satyrus, take the side of rationalism, but he seems here to attack it and he refers the reader for an ampler view to his work *de optima sectione*, which, however, not only contains an attack on empiricism, but—if it is written by Galen at all, which seems doubtful—can hardly have been written before the present little treatise, as it is a much riper work, and Galen himself would have mentioned the fact in his *de ordine librorum suorum.*

Greek medical empiricism is empiricism in its simplest form, it reduces all knowledge to perception, does not admit any activity of the mind and denies all universal concepts, principles and laws. As causation cannot be perceived, the physician has to be satisfied with noting the invariable sequences of individual accidents and symptoms.

The principal and legitimate objections of the rationalists which constitute the first part of the treatise, are in brief: (1) as individual sensations are always new and different, they could never even be remembered; only by finding the identical universal in the unlimited number of individual facts knowledge becomes possible, illness itself is such a universal, how could otherwise the same illness occur in different persons or at different times? (2) if you can only note the sequence and concurrence of accidents and do not inquire into causes, how can the essential and significant fact be distinguished from the accidental fact, for instance, in indigestion, the food the patient has eaten from the garments he wears? (3) how many times a certain sequence of accidents must be perceived, before it can be regarded as invariable?

The empiricist does not seem to see the stringency of the first two objections and his answers are both confused and irrelevant. The last argument, which is considered the most important, he regards as being nothing else than an example of the sophism called *Sorites* (e.g. when the question is put, how many hairs a man must have lost before being bald?). Neither the *Sorites*, affirms the empiricist, nor Zeno's paradoxes against motion can be solved; still by the evidence of the senses we know that they cannot be valid, for perception cannot be refuted and, when reasoning which must always be based on perception is in contradiction with it, it is reasoning which must yield.

The empiricist then goes over to the attack: (1) if deductive reasoning were valid, all rationalists ought to have the same theory, we see, however, that, whereas they agree about facts, their theories are at variance, so deductive reasoning can give no evident truth; (2) if there are universals, they must be either objective and real or subjective, if they are real, how can an identical universal exist in a multiplicity of things, if they are only subjective, knowledge does not conform to reality but falsifies it.

This is in substance the philosophical argumentation of this treatise, which gives many medical examples. The translation is good, but the text is very difficult and sometimes obscure and here and there my rendering would be slightly different. The notes are interesting and refer to parallels in Greek and Latin medical works, but a more ample comment and explanatory remarks would have been useful to the reader. S. Van den Bergh.

Books also received:

D. J. B. Hawkins. *The Criticism of Experience.* London: Sheed and Ward. 1945. Pp. ix + 124. 5s. net.

Karl Kerenyi. *Roman dichtung und Mythologie.* Ein Briefwechsel mit Thomas Mann, herausgegeben zum 70. sten Geburtstag des Dichters, 6. Juni 1945. Zurich: Rheinverlag. Pp. 96. No price quoted.

Karl Kerenyi. *Hermes der Seelenfuhrer.* Zurich: Rheinverlag. Pp. 111. No price quoted.

Franz Stoessl. *Der Tod des Herakles.* Zurich: Rhein-Verlag. Pp. 128. No price quoted.

Paula Philippson. *Thessalische Mythologie.* Zurich: Rhein-Verlag. Pp. 196. No price quoted.

K. R. Popper. *The Open Society and its Enemies* (2 Vols.: I, *The Age of Plato*; II, *The High Tide of Prophecy: Hegel and Marx*). London: George Routledge and Sons, Ltd. Pp. Vol. I, viii + 268; Vol. II, v + 352. 42s. net.

Gilbert Ryle. *Philosophical Arguments.* An Inaugural Lecture delivered before the University of Oxford, October 30, 1945. Oxford: At the Clarendon Press. Pp. 20. 2s. net.

Laval Theologique et Philosophique. Vol. 1, No. 1. Quebec, Canada: Editions de l'Universite Laval. Pp. 199. Price: 2 Canadian dollars.

Godfrey and Monica Wilson. *The Analysis of Social Change.* Based on Observations in Central Africa. Cambridge: at the University Press. 1945. Pp. viii + 177. 7s. 6d. net.

Abel J. Jones. *In Search of Truth* (Discussion Books, No. 79). London and Edinburgh: Thomas Nelson and Sons. 1945. Pp. vi + 207. 3s. 6d. net.

Ralph Stayner Lillie. *General Biology and Philosophy of Organism.* Chicago, Ill.: University of Chicago Press. London, Eng.: Cambridge University Press. 1945. Pp. 215. English price, 16s. 6d.

Charles Mayer. *L'homme ne vaut que par le progrès.* New York, N.Y.: Éditions de la Maison Française, Inc. 1945. Pp. 400. No price quoted.

Canon H. G. England, M.A. *The Revelation of the Word.* A Reconstructive Outline of Christian Theology. London: John Murray. 1943. Pp. xii + 174. 7s. 6d. net.

E. L. Allen, M.A., Ph.D. *The Structure of Life.* London: Nisbet and Co., Ltd. 1945. Pp. viii + 202. 8s. 6d. net.

Swami Siddhesvarananda. *Quelques Aspects de la Philosophie Vedantique* (Causeries faites a l'Universite de Toulouse). Paris: Adrien-Maisonneuve. 1945. Pp. 258. No price given.

Edgar S. Brightman. *Naiure and Values.* New York and Nashville: Abingdon-Cokesbury Press. 1945. Pp. 171. $1.50.

Aaron Hyam. *Wisdom with Power.* Bombay: Indo-Palestinian Publications. 1945. Pp. 200. Price Rs. 6.

Henri Bergson. *The Creative Mind.* Translated by Mabelle L. Andison. New York: Philosophical Library. 1946. Pp. 307. No price quoted.

Sven Edvard Rodhe. *Zweifel und Erkenntnis* (über das Problem des Skeptizismus u. den Begriff des Absoluten). Lund: C. W. K. Gleerup. Leipzig: Otto Harrassowitz. 1945. Pp. 250. Price 12 Kr.

A. A. Luce, M.C., D.D., Litt.D. *Berkeley's Immaterialism.* Edinburgh: Thomas Nelson and Sons Ltd. 1946. Pp. xii + 163. 6s. net.

Bertrand Russell. *Physics and Experience.* The Henry Sidgwick Lecture delivered at Newnham College, Cambridge, November 10, 1945. Cambridge University Press. 1946. Pp. 26. 1s. 6d. net.

A. R. Vidler and W. A. Whitehouse (editors). *Natural Law: A Christian Reconsideration.* London: S.C.M. Press, Ltd. Pp. 45. 2s. net.

INSTITUTE NOTES

The following lectures have been given during the Michaelmas and Lent Terms October 8th, "Main Problems of Moral Philosophy" (Professor C. D. Broad); November 6th and 13th, "Some Important Philosophical Questions" (Professor H. A. Hodges); November 21st, "The Need for a Modern Philosophy of Religion" (The Very Rev. W. R. Matthews, Dean of St. Paul's); November 29th, "Main Problems of Natural Philosophy" (Professor H. Dingle); December 14th, First Manson Lecture on PHILOSOPHY AND MEDICINE: "The Neurological Approach to the Problem of Perception" (Dr. Russell Brain, F.R.C.P.); January 14th, "Main Problems of Logic" (Wm. C. Kneale, M.A.); February 15th, "Main Problems of Political Philosophy" (J. D. Mabbott, M.A.). It has been arranged that Professor Gilbert Ryle should give a course of four lectures during March (5th, 12th, 19th, 26th), and he has chosen as his topic "Man is a Rational Animal."

OBJECTS OF THE INSTITUTE

The British Institute of Philosophy exists to bring leading exponents of various branches of Philosophy into direct contact with the general public, with the purpose of satisfying a need felt by many men and women in every walk of life for greater clearness and comprehensiveness of vision in human affairs.

With this broad educational purpose in view, the Institute—

(1) Provides at suitable times in the day and evening courses of lectures by leading exponents in the more important subjects coming within the scope of Philosophy. All branches of Philosophy are represented —Ethics and Social Philosophy, the Philosophy of Law and of the Sciences, of the Fine Arts and of Religion, as well as Logic and Metaphysics and Psychology.
These lectures are free to members.

(2) Issues a quarterly philosophical journal (free to members).

(3) Proposes to form a philosophical Library.

(4) Gives guidance and assistance to individuals in their philosophical reading.

(5) Encourages research in Philosophy.

There are Local Centres of the Institute at Bangor, Cardiff, Liverpool, Manchester, Newcastle and Durham, and Sheffield.

Further information and forms of application for membership may be had on application to the Director of Studies at University Hall, 14 Gordon Square, London, W.C.1.

[Suggested]

FORM OF BEQUEST

I bequeath to THE BRITISH INSTITUTE OF PHILOSOPHY the sum of ..... free of duty, to be applied to the purposes of that Institute, and I declare that the receipt of the Honorary Secretary, or other proper officer for the time being of that Institute, shall be sufficient discharge for the same.

CONTENTS

PAGE

I. SOME OF THE MAIN PROBLEMS OF ETHICS
Professor C. D. Broad 99

II. EQUALITY AND EQUITY. D. Daiches Raphael, M.A., D.Phil. . 118

III. THE NEUROLOGICAL APPROACH TO THE PROBLEM OF PERCEPTION. W. Russell Brain, F.R.C.P. 133

IV. ON POETIC TRUTH. H. D. Lewis, M.A., B.Litt. 147

V. NEW BOOKS 167

VI. INSTITUTE NOTES 192

PEIRCE SOCIETY

The meeting called by the Rev. Frederic H. Young of Princeton University for the founding of a Peirce Society was held on the 22nd February, 1946, at Sarah Lawrence College, Bronxville, New York, after the tea for the American Philosophical Association which was on its second day in annual session.

Those present were: Paul Weiss—who acted as Chairman; Sidney Hook, Philip Wiener, Frederic H. Young, Albert Albarbanell, James K. Feibleman, A. P. Ushenko, Daniel Bronstein, S. J. Kahn, M. Wertz, A. W. Burks, J. Buchler, Joseph Ratner, Max Black, H. S. Leonard, A. J. Benson, G. V. Edwards, Jr., David Lavan, Howard N. Wiedemann, Roderick M. Chisholm, W. H. Hay, Lenore D. Bloom, Otis Lee, J. E. Smith, and Martin Lyons.

These gentlemen organized themselves, after a considerable discussion of the purposes of a Peirce Society, into the Charles S. Peirce Society, and proceeded to elect temporary officers whose function was to draw up a statement of aims, and also to prepare a constitution and by-laws, to be submitted by mail to all members. Mr. James Feibleman was assigned the task of preparing this data in the first instance, to be supplemented by criticism of the other officers before mailing to members for their reactions.

These officers were elected: President, Dr. Paul Weiss; Secretary, Rev. Frederic H. Young; Treasurer, Mr. James K. Feibleman. Mr. Young gave $20.00 to the treasurer as a donation from St. Stephen's Episcopal Church, Newark, N.J., and from the graduate students in philosophy at Princeton. The meeting opened at 5.15 p.m. and adjourned at 6.00 p.m.

Address correspondence to Frederic H. Young, *Sec. of Peirce Society*, Graduate College, Princeton, N.J.

NOTICE TO MEMBERS OF THE INSTITUTE

In a letter from the Chairman in March, members were informed that the costs involved in carrying on the work of the Institute had greatly increased since 1939. This made it necessary to explore ways and means of augmenting the annual income of the Institute. It was stated that the Council were reluctant at the present time to raise the annual subscription, but they desired to draw the attention of members to another way in which the income of the Institute could be increased at no extra personal cost. The Institute is regarded by the Income Tax authorities as a charity, and if members would be good enough to enter into a covenant in a prescribed form, to pay for a period of seven years an annual subscription of £1 1s., the Institute could recover the amount of income tax on this sum. At present rates, if all the members of the Institute agreed to enter into such a covenant, the income of the Institute would be nearly doubled.

Members are especially urged by the Council to assist the Institute by this method, if they are able to do so.

PRINTED IN GREAT BRITAIN
BY UNWIN BROTHERS LIMITED
LONDON AND WOKING